THE OLD TIMER'S BULLETIN

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Published for the Old Time Wireless Operator, Historian and Collector

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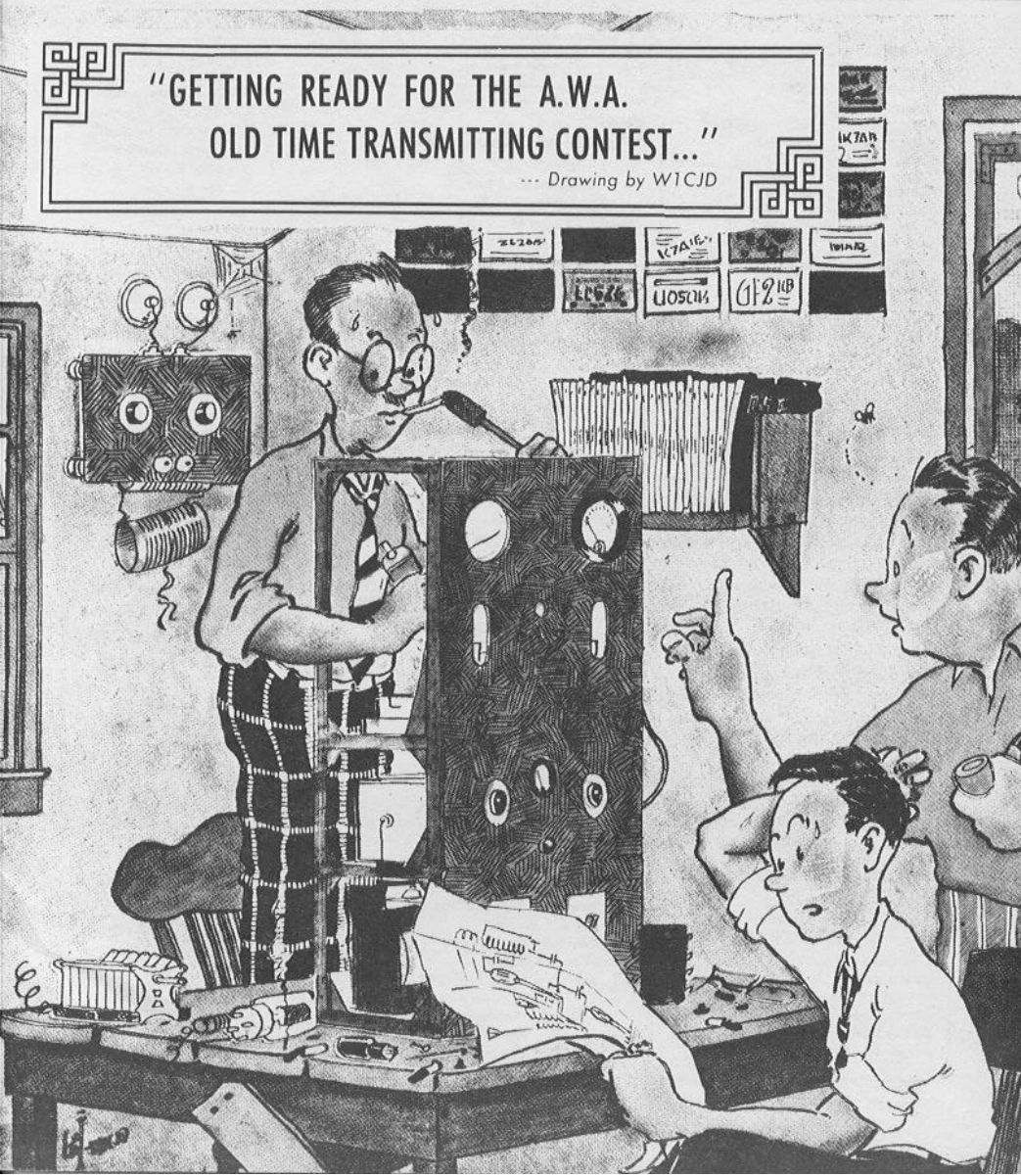
"GETTING READY FOR THE A.W.A. OLD TIME TRANSMITTING CONTEST..."

--- Drawing by W1CJD



Devoted to research and documentation of the history of wireless communications.

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in the "Old Timer's Bulletin"

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Building a Hazeltine set
Early Telegraph makers
The Regulator Tube
Universal ABC Eliminator
The DV-DL Tube
The HRO Receiver
Armstrong's Super-Regen set
History of Bliley Crystal Co.
A 1910 Receiver
plus much, much more.....

COMING EVENTS
ANTIQUE WIRELESS ASSOCIATION

Old Time Transmitting Contest Jan. 12-13, Jan. 15-16
Annual I. H. R. S./A. W. A. Meet Apr. 16, Auburn, Indiana
Local Spring Meet, May 7 East Bloomfield, N. Y.
Rochester Hamfest, May 20-21
Upper Mid-west Meet, May 20-21 Minneapolis, Minn.
Annual Conference, Sept. 28-30, Oct. 1-2, Canandaigua, N. Y.
Annual Business Meeting, Nov. 6

A.W.A. – B.V.W.S. MEET IN LONDON, ENGLAND

Tentative plans are being made for a joint meeting with the British Vintage Wireless Society sometime in June.

AWA members will go as a group to London where they will meet fellow British collectors and historians. Although plans are not firm at this writing, it would appear one day will be devoted to a general meeting with programs and social activities and a one or two day visit to the famous British Science Museum. Complete information in the March OTB. -- C. B.

OTB LATE?

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RECENT RADIO and ENTERTAINER OBITUARIES

Vladimir Zworykin, Television Pioneer, Dies at 92

Dr. Vladimir Kosma Zworykin, a Russian-born scientist whose achievements were important to the development of television, died Thursday at the Princeton (N.J.) Medical Center. He was 92 years old and lived in Princeton.

Dr. Zworykin, a naturalized American citizen who was also credited with spearheading development of the electron microscope, had served as director of the RCA Laboratories in Princeton. Since his retirement in 1954 he was an honorary vice president of RCA.

His other important work included development of early forms of the "electric eye," infrared image tubes first used in the Snooperscope and Sniperscope in World War II, and various forms of secondary emission multipliers used in radiation detectors.

Held More Than 120 Patents

Dr. Zworykin held more than 120 patents on developments ranging from gunnery controls to electronically controlled missiles and automobiles, but his place in scientific history rests largely on two inventions patented in 1923 and 1924.

These were the iconoscope camera tube and the kinescope picture tube, which together formed the first electronic television system and replaced the cumbersome mechanical system of whirling perforated discs that had dominated the early and largely ill-fated development of television.

The iconoscope, which vastly reduced the amount of light required to capture a viable image and became the heart of the first practical television camera, has since been superseded by the image orthicon tube developed by Dr. Albert Rose, but for all its intervening refinements and enhancements the modern picture tube remains essentially the kinescope Dr. Zworykin developed more than a half-century ago.

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In Memoriam

KAZUO IWAMA
President of Sony since 1976.
He was 63 years old.

SOL TAISHOFF
Editor and co-founder of
Broadcasting magazine.

LESLIE WARNER
Former Chairman of G. T. E.
Mr. Warner was 71 years old.

DAN SEYMOUR
Announcer CBS

LOUIS DEAN
Pioneer announcer with WGY, CBS and NBC.

JULIUS SEEBACH
Pioneer programmer with CBS and WOR
Mr. Seebach was 84 years old.

DR. PIERRE MERTZ
Pioneer with AT&T and Bell Labs.
85 years old.

HARRY MARBLE
Longtime radio and TV announcer
with CBS and WOR.

FRANK SINGISER
Announcer at WGY in late 1920's.
Also WOR and NBC.

CHARLES WALTERS
Dancer and director of many well known movie musicals. 68 years old.

Max M. Jacobson, 83, NBC Radio Engineer

Max M. Jacobson, 83, a retired radio field engineer supervisor with the National Broadcasting System and a resident of Silver Spring since 1959, died of congestive heart failure Sept. 3 at Montgomery General Hospital.

Mr. Jacobson was born in New York City and worked for NBC there until his retirement in 1959.

He was an amateur radio operator and a member of the Society of Wireless Pioneers, the Quarter Century Wireless Association and the Antique Wireless Association.

Survivors include his wife, Margaret, of Silver Spring; three sons, Richard, of Chalfont, Pa., Arthur, of Bryan's Road, Md., and Michael, of Clinton, Md., and four grandchildren.

Max (W3DUG) was a longtime AWA member. He contributed Material and assisted in the making the Association's most recent film show "The Thirties".

EUNICE RANDALL THOMPSON

Amateur radio lost a pioneer with the passing of W1MPP. Her career covered employment with the Amrad Corp. and broadcasting over their station in the early '20s. In later years, she will be remembered for her intense interest in OOTC activities. A most warm and generous person. She will be missed.

SILENT KEYS

Phil Haller, W9HPG
James Beaver, W3AHZ
Max Jacobson, W3DUG
Burton Noyes
Dexter Bartlett, C.A.A.
Clarence E. Dengler, W2LK

REPORT ON ANNUAL CONFERENCE

BIG FLEA MARKET----
..SEE OLD FRIENDS AND MAKE NEW ONES.
TOP SPEAKERS..
A GREAT TIME !
AUCTION - WOW!

Summery days with a touch of autumn color and crisp nights greeted nearly 700 who traveled to Canandaigua for the 1982 Conference. For some, it was a 6 day occasion, since they arrived Monday and stayed through Saturday.

ATTENDANCE: Because of the recession, the Committee had doubts about attendance. Thus it was a pleasant surprise a few weeks before the event to see registration pick up. Total attendance, including "walk-ins", was around 700. Oversea members who planned trips to coincide with the Conference included Guy Biraud and his daughter Catherine from France. They were accompanied by fellow collector, John Scwierzynski from Lyons, France. Other oversea visitors were Franz Monk and his wife Christine from Austria. Do come again !

From a nearby state was Reg Washburne, first editor for "Radio-Craft" magazine (1929). He started his radio career working for the old Marconi Co. at Aldene, N. J. Reg came with Fred Schunaman, also a former "Radio Craft" editor and later "Radio Electronics" editor. They fondly recall the days working for the one and only "H" !

PROGRAMMING: We've heard nothing but praise for the series of programs starting with Art Goodnow's engineering approach to spark transmitter operation as seen on an oscilloscope. Subject material for other talks covered a wide range of subjects all presented in a professional manner.

We're now looking for 1983 programs. Do you have a talk/paper/demonstration you would like to give ? And for the ladies, a trip to the new M. W. Strong Museum in Rochester is being talked about.

FLEA MARKET: The huge flea market had an all-time high of 87 registrants. Aside from some slight criticism about one or two commercial ventures, it was a smooth operation with few problems. Remember the young fellow who directed parking ? May we suggest you follow his instructions in the future, for he represents both AWA and Sheraton Management. He is an off-duty officer for the city police department.

Note: The Association has been advised there may be a cost increase in use of grounds and facilities for the '83 event. The Sheraton has overhead expenses (taxes and liability insurance) which obviously must be shared with the user. A charge for flea market space is common for hamfests and other events. We too may find it necessary in the future.

See you same place, same time next year..... Lauren and Bruce

Recipients of Conference Awards:

HOUCK AWARD (Preservation)
Fred Hammond, VE3HC, curator of Canada's outstanding radio museum.

TYNE AWARD
Lauren Peckham, well known tube historian and AWA OTB Tube Editor.

ELLE AWARD (Master Craftsman)
Lincoln Cundall, W2LC, Construction of United Wireless Type "D" Tuner

MATLACK AWARD (Early transmitter)
John Haught, KA3BRK, excellent workmanship in making a 1930 transmitter.

OLD TIME TRANSMITTING CONTEST
Charles Hinkle, K4TS, 1982 winner.

PRESIDENT'S AWARD
Ed Culver, WA2JAA, for countless hours working on AWA projects.

OLD EQUIPMENT AWARDS

NATIONAL HISTORICAL RADIO CONFERENCE

CLASS 1. Crystal receivers

1st-- United Wireless Type "D"
Jim Kreuzer

2nd-- 1914 Clapp-Eastham set
Lauren Peckham

3rd-- National Electric (NESCO) CN-113
John Caperton

Hon. Men. -- Thomas-Houston Bijou
Bob MacIntyre

Hon. Men. -- British Radionette
John Wiesner

CLASS 2. Regenerative receivers

1st-- IP-501, Amplifier and manual
Dan Gaidosz

2nd-- DeForest T100 and P300
Ralph Muchow

2nd-- Mignon RW-4
Lauren Peckham

3rd-- Cutting & Washington Mod. 11
Douglas Furney

CLASS 3. Tuned Radio Freq. sets

1st-- Transoceanic Golden Leutz
John Caperton

2nd-- Operadio portable with modules
John Johnson

3rd-- 3-tube Ware receiver
Chet Wisner

Class 4. Superheterodynes

1st-- Murcury Super 10
James Wade

2nd-- Supertone
John Caperton

3rd-- Rader (homebrew)
Peter Yanczer

CLASS 5. Shortwave receivers

1st. -- Grebe CR-1
Ralph Muchow

2nd-- SE-1012
Floyd Bennett

3rd-- Pilotone Universal
John Caperton

CLASS 6. Speciality & novelty sets

1st-- Grafton Lord Galena
Mike Batsch

2nd-- Radio Keg
Clay Seidel

3rd-- Radio Horse
Charles Bradley

Hon. Men. -- Felix the Cat
John Williams

CLASS 7. Detectors prior to Audion

1st. -- 1900 variant of Marconi mag. det.
John Williams

2nd-- Marconi Marconi detector
Richard Brewster

3rd-- 1909 Silicon detector
Floyd Bennett

CLASS 8. Shortwave converters

1st-- Leutz Trans. Freq. Changer
John Caperton

2nd-- Scott Type 20
Ed Taylor

3rd-- AK Model 93
Ralph Muchow

CLASS 9. Tube transmitters

1st-- Parallel 202's transmitter
Bill Holly

2nd-- W. E. Police transmitter
Rodney Schrock

3rd-- 1930 Breadboard
John Haught

CLASS 10. Spark Transmitters

1st-- Marconi coast guard set
Ralph Muchow

2nd-- 1915 Wireless transceiver
John Glisson

JUDGES: Ross Smith, Jim Troe, John Drake, Charles Day, Roland St. Louis and Ralph Williams

Congratulations to particpants and judges for bringing together one of the finest displays of historical equipment in the country. Pieces on display this year were exceptional, making it difficult for judges to make decisions.... even pieces that did not garner an award were far above average. Again, congratulations !

The Committee is already working on the '83 Contest and may have the categories ready for the March Bulletin.....

This is a Radio Christmas

THE AUCTION

NATIONAL HISTORICAL RADIO CONFERENCE

SUMMARY OF CONFERENCE AUCTION

(f) Fair, (g) Good, (vg) Very Good, (e) Excellent. All sets have tubes unless otherwise noted.

RECEIVERS:

Radiola V (no tubes)(e) $390., RCA "16" (vg)$60., Radiola 24 (f)$75., RCA Mod. 25(e)$160., Radiola III A (no tubes)(vg) $100., RCA Mod. 20(e)$135., Radiola III w/t (vg) and bal. amp. $140., Deforest Interpanel (vg)$900., Rely-O-Dyne (trf) (vg)$38., Homemade variocoupler receiver (e)$70., Freshman Masterpiece (g)$50., National HRO-M w/pwr & 4 coils (g)$155., Arvin AC set (g)$12., IP-501 (need to replace socket) $600., AK Mod. 42 (f)$12., AK Mod. 44 (g)$20., AK Mod. 20 (e)$45., AK-35 (g)$15., West. RC (vg)(no tubes)$95., Philco "beehive" Mod. 20A (g)$37., Miraco trf (g)$35., Grimes Duplex (vg)$105., Splitdorg 6 tube trf (e)$18., RADA (g)$115., Trirdyn (vg)$90., Crosley 50 (e) $100., Crosley Ace 38(g)$90., Crosley XJ (g)$20., Kolster 7A (g)$16., BC-348 (g)$27., Zenith 808 (vg)$35., Aeriola Jr. (e)$150., Fada 5-tube trf(vg)$65., Marti TA-2 w/6 Mc Cullough tubes (e)460., Philmore crystal set w/Acme phones in orig. boxes (e)$240. Tuska Superdyne 305 (f)$130., Mohawk 5-tube w/201's (g)$$0., Acme Reflex (g) $65., SW-3 w/6 sets of coils(e)$160., NR-7 (e)$45., Thermiodyne (vg)$20., Cleartone (vg)$75., Hall Melodyne (vg)$40., West. RC (e)$105., National 1-10A (vg)$60., Grebe Sync./spkr. (g)$140., Howard amateur rcvr. $50.

SPEAKERS:

AK Mod. H (vg)$36., AK "E" $20., AK "H" (g) $40., AK "E" (g)$30., RCA 103 (g)$20., RCA 180 (g)$20., RCA 106 (g)$50., Jewett Superspeaker (vg)$60., Crosley Musicone (g)$21., W.E. 24" double-cone (e)$160., Peerless (g)$30., Magnavox cabinet mod. (vg)$12., Operato (g)$25., Holtzer-Cabot horn (f)$35., Burns horn spkr. (g)$125., Sonora (g)$25., Temple (f)$15., Amplion cathedral (g) $25.

TUBES:

Tubular Audion (good fila.)$65., WD-11 (bakelite)(g)$23., North. Elect. R-215A (g)$14., Set of 3 Brightsons in case $120., Myers audion w/mount $40., Myers in orig. box $50., 3 Myer audions in orig. cartons/mounts $65., Cooper-Hewitt mercury arc $55., Mullard Type "R"$35., TB-1 and VT-11 (g)$45., Osram S625 (g) $30., DeForest VT-4-B (g)$20., Audiotron (1 good fila.)$55., Audio-tron (2 good fila.)plus instr. sheet $100., (2) VT-1 in orig. boxes $30., (1) 126 and (1) 127 blue Arcturus $10., Alexanderson TV scanning tube $160.

MISC.:

Radio stand $50., Homemade loosecoupler $34., Gen.Rad. 514A resist. coupled amp. (vg)$35., Homemade spark xmtr. (g)$95., Riders Manual XI $9., WE 7A amp. w/ 216A tubes (vg)$140., Marconi high voltage spark xfmr. (g)$190., Early light galvanometer (f)$80., large rare Massie key circa 1908 $750., (4) early light bulbs $51., (2) 1929 & 1938 books on TV $45., Sig. Corp R-64 key (new)$10., Duck 5BB loosecoupler (g)$210., AK service manuals 1924 to 1932 $70., Edgewound xmtr. helix $25., Carbon fila. lamp (g)$5., WE db mike w/homemdae stand $60., 2-slide tuner (g)$25., Majestic "B"elim. (g)$20., Unmarked loosecoupler (g)$70., Radio lamp (e)$155., Weston voltmeter (g)$20.

COMMENTS:

The above is a partial list of sales. The trend followed the same as in previous years-- early brand names dominating the high price range. Top dollar went for a DeForest Interpanel set ($900.) which is about $100. over previous years. A rare and most unusual key sold for $750. -- the most ever paid for a radio or telegraph key. There were some real good buys such as the IP-501 for $600. (even though there was a need to wire in the tube socket). A similar set sold recently for $1800. Surprisingly, several nice items had no bidders such as a telegraph sounder for $12. Most sounders are currently selling for $20. to $30.

The LOUDSPEAKER

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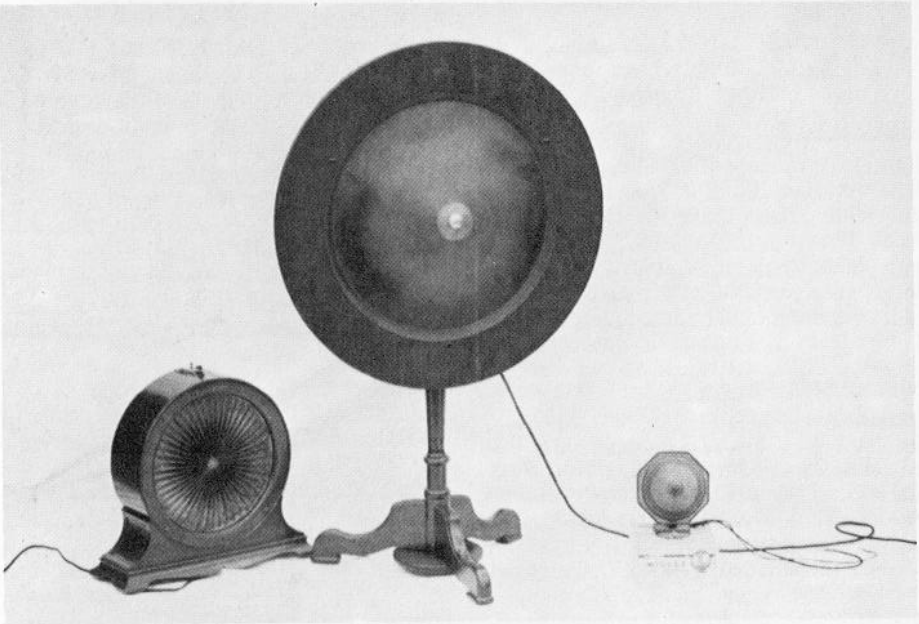


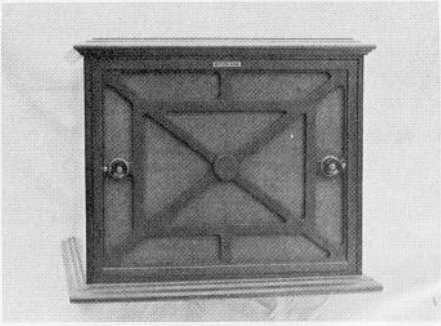
QUES: Did cone speakers come in many sizes and were all cones of similar design?

ANS: 99+% of the cones in cone speakers were conical. They were used in both concave and convex positioning with respect to the listener. Some manufacturers used a push-pull arrangement with cones back to back (ACME - double cone). The picture shows three sizes of cone speakers.

The very small speaker is a NA-ALD and is 4" in diameter. The large pedestal speaker is a Stromberg Carlson 5-A standing 35" high with a 15" diameter cone and 22" diameter sounding board. Note the weighted iron base stabilizer. The third speaker is a Victor Talking Machine Company VS-1, "*Lumiere*" and has two cones (front and back) which are pleated of a rather thin parchment. It has a volume control on top of the cabinet.

QUES: Were horn speakers built into and made an integral part of a system which included an amplifier?

ANS: Magnavox made amplifier modules A1-R and A2-R, out of which a neck and bell unit protruded. Victory Radio-Electro Company made an audio module out of which a straight neck and bell protruded and Thompson Manufacturing Company made a radio out of which a goose neck and bell protruded.



Western Electric made an amplifier 14-A which contained a three tube amplifier

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THE ATWATER KENT HORN SPEAKER

by Floyd A. Paul and Ralph Williams

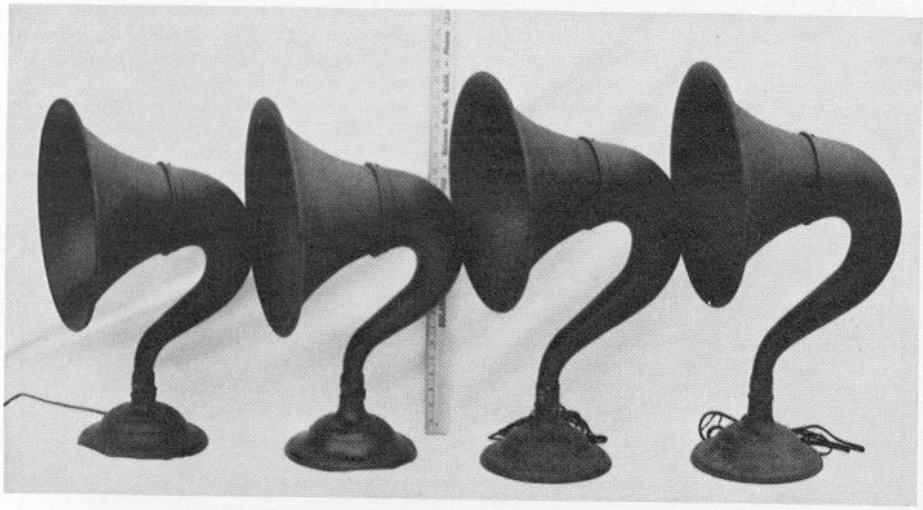


Fig. 1 Atwater Kent Model M -- 22 1/4", 23", 25" and 25 3/4" sizes.

Early loud speakers reveal both the beginning of an important technology and the responses made by entrepreneurs such as Atwater Kent to the business opportunities presented by radio fans who wanted to listen without the encumbrance of earphones. The speakers offer an intriguing subject for examination and evaluation by collector/historians who can use the perspectives of time and technology in doing their studies.

The authors, Floyd Paul researching early horn speakers, and Ralph Williams studying the Atwater Kent Manufacturing Company, found common interest in considering that Company's first offerings to the loud speaker market. This article considers in some detail Atwater Kent's response to the demand for loudspeakers by looking at his initial series, the metal horns.

When did Atwater Kent enter the market? How well did he do in the business? How did he exit from this segment of loudspeaker production? The first and third questions are answerable from analysis of contemporary records. The answer to the middle one comes from evaluation of the speakers themselves and forms the main body of this article.

The time of Atwater Kent's first entry into the speaker field is best revealed by looking at the numbers assigned to the parts from which the speakers were assembled. The *Model M horn* was assigned Part No. 4460 and the bell was assigned Part No. 4210. For comparison, the *Model 10 Radiodyne* was assigned Part No. 4340. The M horn was announced at the same time as the Radiodyne, November 1923, with production early in 1924.

This is partially verified by the availability of the Type 5V (No. 4437) and 6C (No. 4438) phonograph attachments in mid-1923. These units contained the operating electromagnetic elements of the type M sound unit. The phono units were marketed while the mechanical parts of the speakers such as bells, horns, and bases, were being designed and introduced to production.

The Atwater Kent factory earned substantial profits by manufacturing well accepted radio receivers and loud speakers for sale to the very selective American customer. That Atwater Kent made successful business choices between product performance and cost is evidenced by his increasingly large share of the radio market starting with the *Model M* loud speaker and the set it complemented, the *Model 10*.

Among all horn manufacturers it is believed that Atwater Kent made and sold as many or more horns than any other producer. The only runner up and certainly a major producer was Magnavox. Magnavox primarily made horns while Atwater

The LOUDSPEAKER

[Continued from previous page]

using 216-A tubes and had a built-in wood re-entry type horn speaker. The cloth grill end is shown with the on-off switch and multi position volume control shown. The driver is a W. E. #527 and the wood bell was 11" x 13" behind the grill.

Kent made radios and, as an ancilliary item, made horns.

In a survey made by author Paul in 1981, with listings from 56 collectors reporting on 829 horns, AK horns numbered 107 while Magnavox numbered 104. This approximate ratio of one eighth of all horns reported when applied to the estimated 5,000,000 horns in use by the end of 1926, indicates upwards of 600,000 AK horns sold to the public. This accords approximately with 800,000 AK receivers sold through mid 1926.

darker and more classic green color.

Model M horns came in several heights and Table 2 identifies these height differences. It is believed that the first model M horn was 25" high and was finished in black crystaline. A design change brought out two shorter M horns with a lower base height for the shorter of the two horns, the 22¼" one. The two shorter horns had a neck length of 15". A boss on the bottom of the neck (directly behind the nameplate) distinguished it from the 25" high horn whose neck was 17" in length.

TABLE 1 — KEY HORN PARAMETERS

Model	Base Dia.	Bell Dia.	Materials Base	Materials Bell	Neck	Height	Logo Color	Neck to Bell screws
G	8½	14½	steel	steel	iron	21½	Green	B/F
H	8½	14½	steel	steel	iron	21½	Green	B/F
L	8½	14½	steel	steel	iron	19¼	Brown	B/F
M	8¼	14½	iron	steel	alum	22¼	Red	O-I
	8¼	14½	iron	steel	alum	23	Red	O-I
	8¼	14½	iron	steel	alum	25	Red	O-I
	8 9/16	14⅞	iron	brass	alum	25¾	Red	O-I
R	7⅜	12⅜	steel	steel	iron	16¼	Red	B/F

Notes: G, H, L & R Logos (namesplates) are located on the bell.
M Logos are located on the base of the neck.
All dimensions are in inches
Most bell & height measurements should be within ⅛"

To aid the collector in identifying AK horns, Table 1 shows key parameters and major feature differences of AK horns. Such items as base diameter, bell diameter, heights and logo emblem colors are listed.

AK made three different colored, wrinkle finished, horns. The most common color by far was dark brown, the color used on M, H, L & R horns. A few horns, including the M & R were finished in black. The G horn was green in color. The bell and base were a light olive green and the neck was a

The 22¼" horn used the boss for drilling, spot facing, tapping and the use of a set screw to lock the neck to the shorter base which had a slot in the base support stud. The 23" design did not drill and tap the neck boss and it did not have a slot in the base stud post.

A 25¾" high, black crystaline M horn in author's Paul horn collection is believed to be a prototype or part of a short early production run because it has a brass (copper) bell and brass base retainer housing that the bakelite driver earphone unit

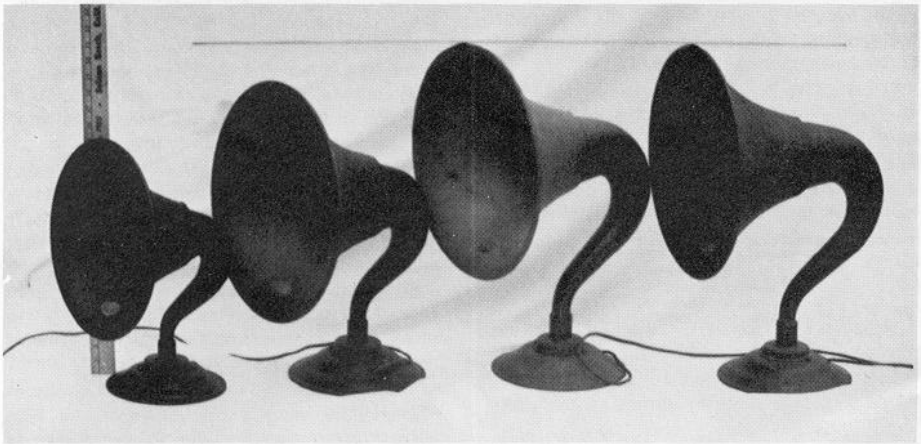
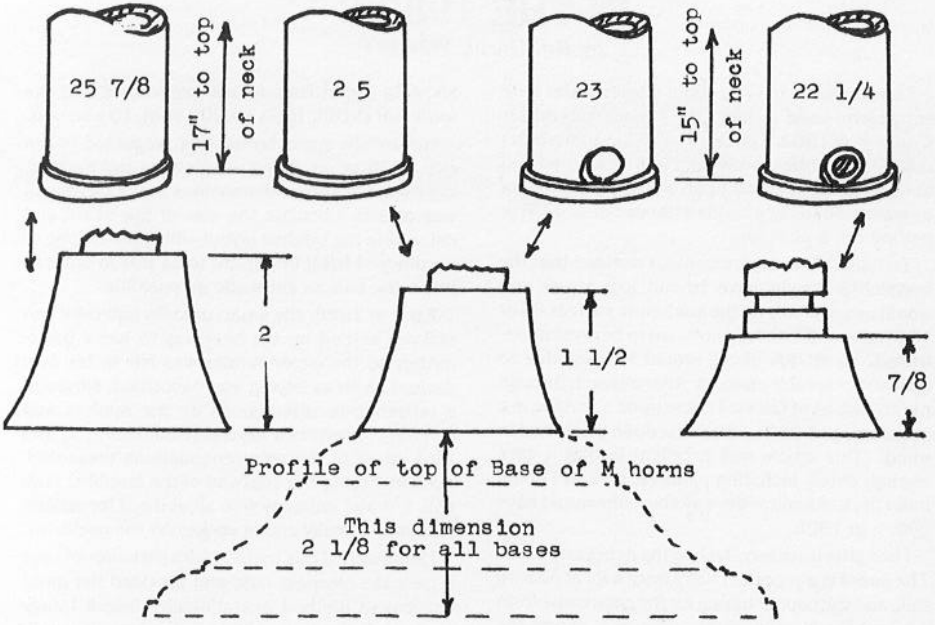


Fig. 2 Left to right: Models "R", "L", "G" and "H".

Table 2. Model "M" Horn details



screws into. Brass and copper would hardly be a planned production material when cheaper and more cost effective metals were available.

A series of shorter horns followed the M design. Cost savings were realized when the L, R, H & G came onto the market utilizing a punched steel base instead of a cast iron base. Also the bell attachment to the neck was simpler and easier to assemble. The R horn was the smallest (height and base diameter). The G, H & L had the same base diameter. The G & H were taller than the L.

To provide the collector who is intent upon identifying further similarities and differences among the AK horns, Table 3 is given. It lists a variety of detail parts which made up horns. The part numbers were taken from September 1926 and August 1928 AK part listing catalogs.

TABLE 3 — PARTS LISTING OF AK LITERATURE

First Produced — Part No.	Oct 23 M	Mar 24 L	Jul 24 R	Apr 25 H	May 26 G
Horn (Whole Speaker)	4460	4645	4800	7700	8290
Bell	4210	4648	7878	7719	8366
Diaphragm	4251	4251	4838	4251	4251
Dia. Gasket (Rubber)	4252	4252	4866	4252	4252
Dia. Adj. Spring	4254	4254	4850	4254	4254
Dia. Washer (Steel)	4301	7573	4849	7573	7573
Base Pad (Felt)	4211	4934	4933	4934	4934
Gooseneck	4266	4642	4864	7701	8365
Bell Holding Screws	—	4649	4649	4649	4649
Cord	4259	4259	4889	4259	4259
Base only	7874	7876	7877	7876	8362

Atwater Kent used a sequential numbering scheme for all of his manufactured products. (See OTB 14-1-30 for detailed listing of radio dates.) It is easy to see from that listing where the horn part numbers fit with respect to time. Table 3 shows the approximate start of production on the several horns.

In the survey of horns mentioned earlier in this article 56 collectors reported a distribution of the 107 AK horns as follows: (All brown unless noted) **34** were H, **32** were M, **27** were L, **5** were R, **4** were black M and **5** were green G.

When and why did Atwater Kent turn away from the horn as the means to reproduce radio sound? What came next? From this vantage of history we know that the paper-cone, magnetic-driver speaker replaced the horn. But why? The forces to which Atwater Kent responded when he brought out the horns – technology, performance and cost – had again taken a big step forward and so did he.

Horns were sold with sets up to Model 35 in late 1926 and early 1927 when the type E cone speaker became the preferred product. The horns had enjoyed a relatively long life as radio products went in the 20's, having been offered for about three full years.

Figure 1 shows the "M" family of horns. Figure 2 shows the shortest, "R" followed to the right by the L, G and H.

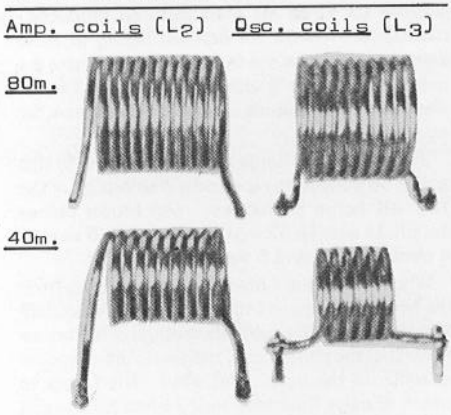
A VINTAGE TRANSMITTER FOR OPERATION IN THE 1980'S

by Bill Hurni, W3HWT

I would like to tell you about a transmitter project which I used in the '*Old Time Transmitter Contest*' of 1982. I decided to build a transmitter out of the twenties; however, I was concerned that the rig I finally decided upon would be capable of operating on today's bands without causing TVI or getting me a pink slip.

To fulfil these requirements, I decided that the transmitter would have to run low power and would be used only on the low bands such as 80 or 160 meters. Since I did not want to be crystal controlled, an MOPA circuit would be desirable to achieve acceptable stability. After a search through my collection of QSTs, I came upon an article in a 1928 issue of QST(2) that described what I had in mind. This article was excellent in that it gave enough detail, including pictures, so that I could build the transmitter the way someone would have built it in 1928.

I had little trouble collecting the necessary parts. The board is a piece of cherry from a local planing mill, and the copper tubing for the coils came from a plumbing supply house. Figure 1 shows the details of coil construction using the tubing (2). The original electronic components I collected from my own junk box and from friends.



The 80m. coils have an inside dia. of 2 1/2" and 1 3/4" for 40 meters. The antenna coils (L_1) are the same diameter and about 1/3 number of turns of L_2. unless an antenna tuner is used with coax line-- then only 3 to 4 turns.

As seen in the circuit diagram (Figure 2) the set uses an MOPA circuit with a 210 oscillator and a 210 amplifier. The diagram shown, however, is incorrect. A correction was subsequently printed showing a grid leak across capacitor C8 in the oscillator circuit. It is a 10,000 ohm, 10 watt unit.

No definite parts layout was presented in the article. However, using the pictures and measuring things of known dimensions in the pictures, I was able to calculate the size of the board and determine the original layout with a fair degree of accuracy. I felt it important to do this in order to make the unit as authentic as possible.

Back in 1928, the amateur radio fraternity had still not settled on the best way to key a transmitter, so the experimenter was left to his own devices as far as keying was concerned, although a reference to discussions on the subject was given (1). I reviewed several references (1, 3,) and tried some of the recommendations presented, such as keying the cold end of the amplifier tank coil, but was unhappy with all ot them for various reasons. I finally ended up keying the oscillator.

I approached this method with grave doubts but it gave the cleanest note and provided the most convenient method operationally since it totally shut down the transmitter during key-up conditions. I inserted the key in the cathode tap of the oscillator coil. Tone reports from 7 to 9 were received which I felt was quite acceptable considering the rig in question. I attribute the variability in tone report to kindness (bless those who gave me a 9!) and transmitter adjustment, something which is totally foreign to today's amateur.

The neutralization capacitor setting was fairly critical to good tone reports. One old timer whom I worked about a week before the contest remarked after I described my rig, "*Well, it sure sounds like a 1928 transmitter!*"

Power was provided by a simple bridge rectifier power supply using the output of the bridge to supply the amplifier and taking the voltage off the center tap for the plate of the oscillator. No voltage regulation was used for the oscillator. I used 6.3 volts for the filaments of the 210s instead of 7.5 volts as the 6.3 volts was available from the power transformer used. The slightly lower filament voltage did not seem to effect operation of the transmitter. I ran the set with about 600 volts on the amplifier and 300 volts on the oscillator. The oscillator drew about 25 mils and the amplifier about 50 mils.

The rig is reasonably stable considering its construction. Wanting to build a vintage rig, I resisted the temptation to make modifications to improve its performance. I did not find drifting to be a problem at all. I did however find that a very heavy and sturdy table was required to keep the fre-

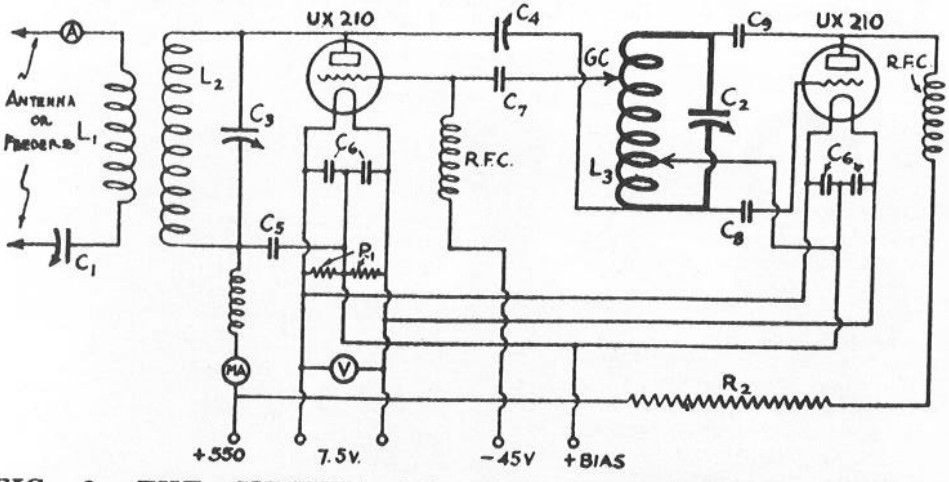


FIG. 2. THE CIRCUIT OF THE TRANSMITTER ILLUSTRATED ON THESE PAGES

C1, C2—500-μμfd. receiver type variable condensers.
C3—350-μμfd. ditto.
C4—50-μμfd. midget condenser.
C5—2000-μμfd. fixed by-pass condenser.
C6—1000-μμfd. filament by-pass condensers.
C7—250-μμfd. coupling condenser.
C8—250-μμfd. fixed oscillator grid condenser.
C9—1000 μμfd. oscillator stopping condenser.
R1—Center tap resistors—50-or 100-ohm resistors or Christmas tree lamps.
R2—100-watt, 10,000-ohm grid leak used to drop plate voltage for oscillator.
R.F.C.—Three sections each of 50 turns of 30 gauge d.c.c. wire wound in ⅛" plots in a 1" former and connected in series. The usual tubular chokes should be equally satisfactory.

quency of the oscillator from swinging due to mechanical oscillation set up in the oscillator coil.

Even with this precaution, the excitement of a distant contact and the resultant pounding of the brass a bit too hard caused swinging. I finally solved the problem with a piece of masking tape across the top of the oscillator coil! The only other difficulty was zero beating another station. Even with a 4-inch knob on the 500 mmf variable capacitor, it did not take much movement to cover a lot of kH!

The transmitter took about a year to complete with the collecting of parts, building, testing out various methods for keying and debugging. It is hard to believe that something this simple would require debugging but it did. As usual, it was a race to the finish line with the rig in final form about one week before the Old Time Transmitter Contest.

During that final week, I made a number of contacts which convinced me that everything was going to work. I found no TVI with my own television and I could not detect any harmonics on a local receiver. A 245 foot end-fed wire was used for an antenna in conjunction with an antenna tuner which probably helped to keep the harmonics down. I have used the rig only on the 80 meter band for reasons stated previously. Figure 3 show the completed transmitter.

The contest has come and gone. I worked many stations all over the country and had a very enjoyable time, as I always do. Now the rig sits on a shelf by a window in my collection of early gear. I keep hoping the sun will help give it 60 years of aging in two or three! What I have learned about early amateur radio from this project is something

[Continued on next page]

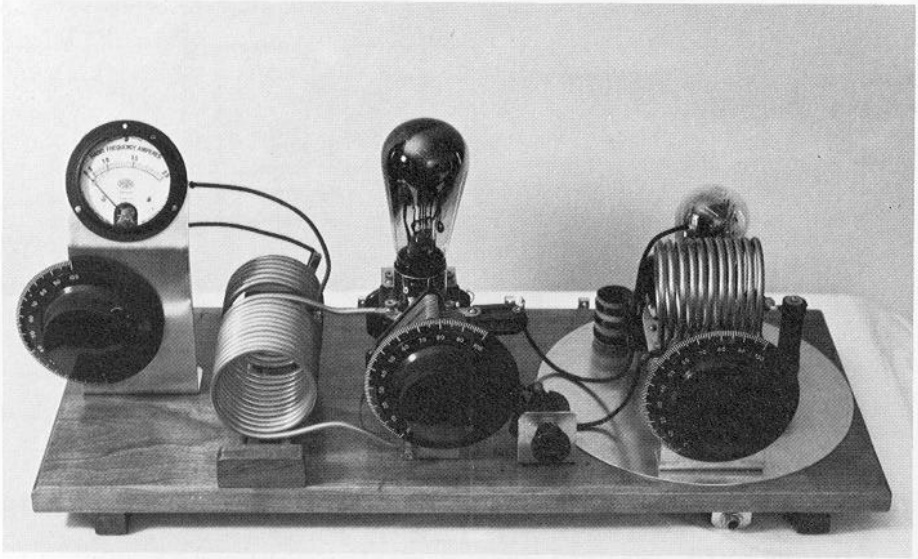
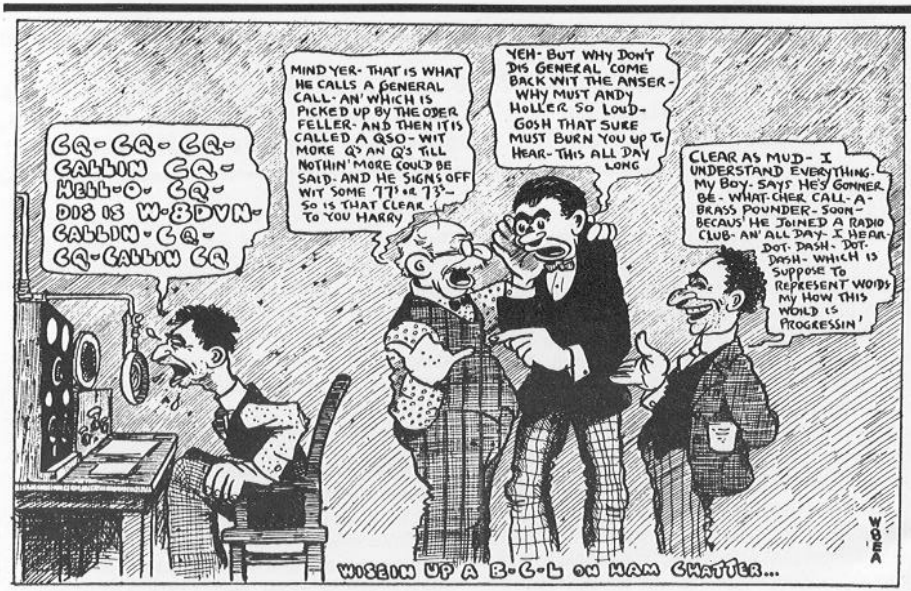


Figure 3. Transmitter with aluminum pot cover removed. Experienced proved shield over oscillator was not necessary for satisfactory operation.

I could not have gained by reading QST or by questioning the few old timers that are still with us. I encourage any of our members with an interest in early ham radio to tackle such a project as a most rewarding one.

References:

1. Dudley, B., *Keying Master-Oscillator Circuits*, QST, April, 1928, pp 37-38.
2. Hull, R. A., *The Oscillator-Amplifier Transmitter*, QST, September, 1928, pp 9-14.
3. Loudon, C. L., *Keying the Oscillator-Amplifier*, QST, May, 1929, pp 30-31.


CQ-CQ-CQ-
CALLIN CQ-
HELL-O-CQ-
DIS IS W-8DVN-
CALLIN-CQ-
CQ-CALLIN CQ
MIND YER- THAT IS WHAT HE CALLS A GENERAL CALL- AN' WHICH IS PICKED UP BY THE ODER FELLER- AND THEN IT IS CALLED A QSO- WIT MORE Q'S AN Q'S TILL NOTHIN' MORE COULD BE SAID- AND HE SIGNS OFF WIT SOME 77's OR 73's- SO IS THAT CLEAR TO YOU HARRY
YEH- BUT WHY DON'T DIS GENERAL COME BACK WIT THE ANSER- WHY MUST ANDY HOLLER SO LOUD- GOSH THAT SURE MUST BURN YOU UP TO HEAR- THIS ALL DAY LONG
CLEAR AS MUD- I UNDERSTAND EVERYTHING- MY BOY- SAYS HE'S GONNER BE- WHAT-CHER CALL-A- BRASS POUNDER- SOON- BECAUS' HE JOINED A RADIO CLUB- AN' ALL DAY- I HEAR- DOT- DASH- DOT- DASH- WHICH IS SUPPOSE TO REPRESENT WOIDS MY HOW THIS WOILD IS PROGRESSIN'
WISEIN UP A B-C-L ON HAM CHATTER...
WEA

A "General Call" . . . But the General Doesn't Answer

AMATEUR RADIO

Editor: Ken Gardner, W2BGN
42 Oakdale Avenue S., New Hartford, NY 13413
All correspondence requires SASE for reply

AWA OLDE TYME CONTEST

Once again all AWA members who are radio amateurs are invited to participate in the Annual Old Time CW QSO Party. You need not be a "speed king" or have old equipment to join the fun.. although the older gear will increase your score. See page 10 of the Sept. OTB for types of receivers and transmitters used in the 1982 Contest. Members in the 5, 6, 7 and Ø districts and all VE's are DX to stations in the East.. so try and operate as much as possible.

LOG SCORE SHEETS

Score sheets will be sent to all former participants in early January. Bud Hall, K2LP is acting Assist. OT Chairman. Newcomers should write Bud for score sheets: Bud Hall, K2LP
Brookside, N. J. 07926

OBJECTIVE: Contact the greatest number of AWA members. When calling, use: AWA AWA AWA de W2AN as an example. On contact, exchange year of equipment, such as "TX36" for a 1936 xmtr and "RX34" for a 1934 receiver. Send "Mod" for modern postwar gear.

DATES: Wednesday, Jan. 12, 1983 at 2300 Z to Thursday, Jan. 13, 2300 Z. and Saturday, Jan. 15, 2300 Z to Sunday, Jan. 16, 2300 Z.

RULES: A station will be scored only once on each band. No cross-band contacts. Non-member contacts will not count. Stations NOT submitting logs will not count.

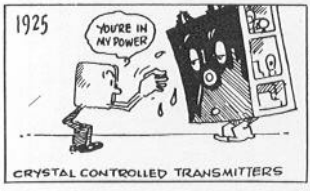
POINT MULTIPLIERS:

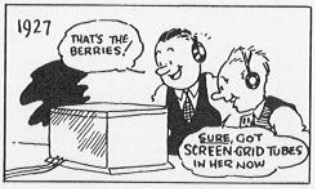
2 for stn using 1939 or earlier TX.
2 for stn using 1939 or earlier RX.
4 for stn using 1939 or earlier TX/RX
5 for stn using 1939 or earlier TX/RX where TX is 20 watts or less and RX is a simple 2 or 3 tube regenerative receiver.

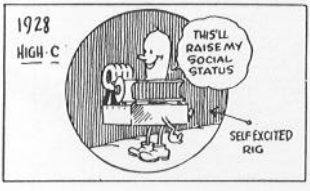
SCORING POINTS:

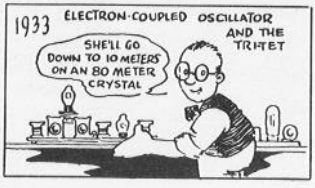
1 for qso with 1940 or later station.
2 for qso with 1939 or earlier TX or RX.
3 for qso with 1939 or earlier both TX/RX.

FREQUENCIES: 3580 to 3600 kHz. 7040 to 7050 kHz. and 14070 to 14080 kHz. plus or minus qrm. Concentrate on 20 and 40 meter qso's on the hour.

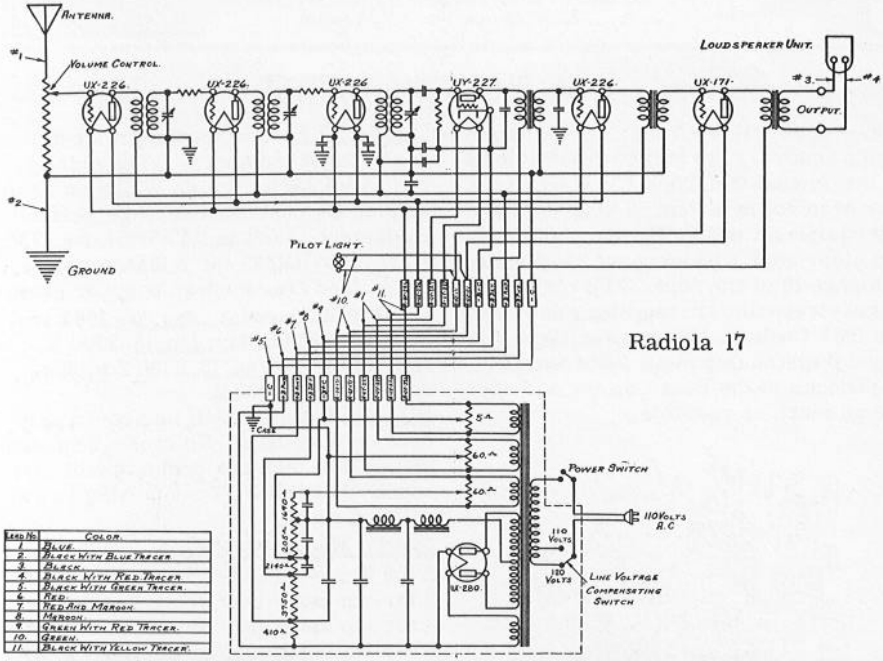








THE RADIOLA 17 and 18

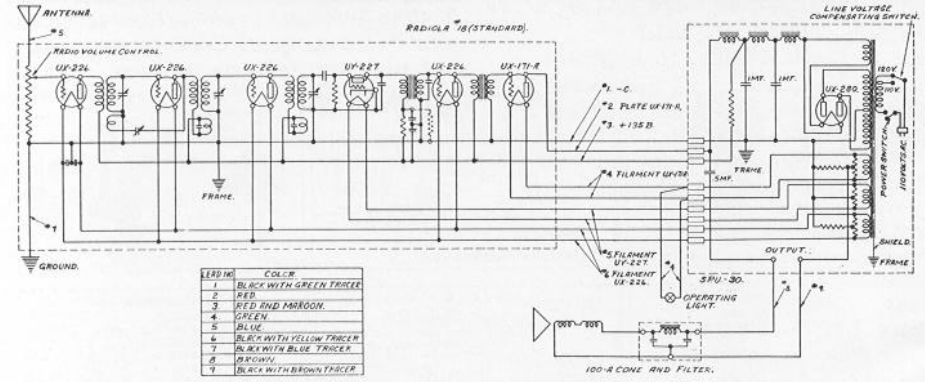


Radiola 17

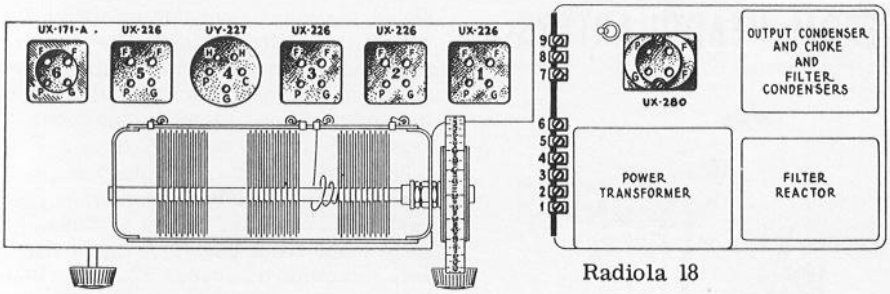
One of the first popular AC receivers released by RCA in 1928-29 was the TRF 17 and 18 with variants such as the phono models 7-11, 7-25, 7-26 and distant cousin 33.

They all had the same basic circuit: (3) 226's RF, 227 Det., 226 Aud., 171A Output and 280 rectifier. A study of the circuits shows the slight differences. Note the resistors in the 226 RF grids which were replaced with neutralizing coils in the 18.

I have found the pot (used as volume control) in the untuned RF stage can be troublesome and should be checked. Also, since all tubes are low voltage, high current, it is always wise



Wiring Diagram Victor Radiola 18
(Used in 7-11)



Radiola 18

to work each tube up and down in the socket several times to insure clean wiper contacts.

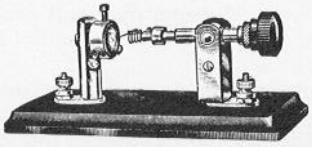
It is a heavy set for a table model (they don't make them that way anymore) but I find the wooden cabinets always sparkle with a little polishing. I am told many radio amateurs rescued the power supplies when they were junked in the 30's for their low-power transmitters.

The restorer will usually encounter a little hum, and the metal hood over the dial light is invariably missing. An example of the first popular AC receiver, it's one all collectors should try to acquire.

– *Chas. Willet*

GALENA GALORE

D. K. deNeuf, WA1SPM



Until the vacuum tube came along it was pretty much agreed that the best device to intercept radio waves was the crystal detector, which actually operated as a rectifier. As early as 1874 Physicist Braun noted that certain pairs of crystals, when arranged so that only a small area of surface was in contact, offered high electrical resistance to the passage of currents in one direction, while permitting them to readily pass in the other direction.

There are a number of minerals in crystal form which will act as detectors, among them being Galena, Iron Pyrites, Silicon, Molybdenum, Bornite and Chalcopyrites. Some operate with a wire or other metallic contact and others require a combination of two crystals · one in contact with the other.

Probably the most popular and widely used crystal was Galena (PbS) · also called lead sulphate, sulphur of lead, or lead ore. (Incidentally the word "sulphur" allegedly is derived from Sanscrit meaning "*enemy of copper*".) Galena as a detector required a very light, stiff and clean wire of copper, brass, or platinum for contact (nicknamed "*Cat-Whisker*" because of its similarity in size and appearance).

Very little pressure of the Cat-Whisker on the crystal was required. Any sort of mechanical jar or vibration would usually move the catwhisker contact off the chosen spot on the crystal, requiring re-setting. Manually finding the best "spot" (strongest signal) on the crystal required some degree of dexterity and patience. The best "spots" were often near the edges of the crystal · probably where most impurities existed.

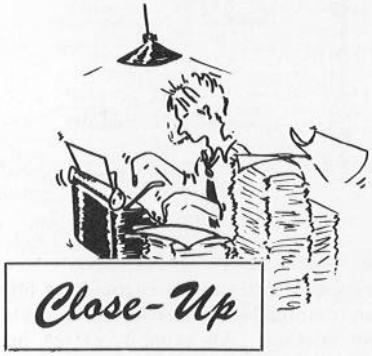
Crystallography is a study in itself, but suffice to say that Galena is characterized by its surprisingly great weight. It has a pure lead-gray color but with a metallic luster, similar to silver. In its native state it forms into cubical or octrahedral crystals which rather readily cleave off into squares.

Sizes from that of a small pea to that of a kid's marble were usually chosen for detector purposes. Galena needed to be replaced frequently when employed as a crystal detector because it gradually lost its "sensitivity" when exposed to the air · presumably from oxidation. Galena usually passed a positive current better than a negative one at a ratio of about 10:1.

While the vacuum tube replaced the old crystal detector for many years, WW2 gave renewed life to the use of crystals for high frequency work such as radar. Like tubes, they could be employed to detect, modulate, rectify, and amplify in the form of diodes and transistors and do it better than tubes could at such frequencies.

In the early 1920s many hams, including the writer, useds to obtain their supply of Galena by mail directly from lead mines in the Rocky Mountains at a cost of something like $1.00 for a couple of pounds of crystals – postpaid, no less!!

FROM HEADQUARTERS



WHAT ELSE IS NEW?

I am becoming increasingly annoyed at people seeking free appraisal service. On two occasions, AWA has been offered Museum material providing it be appraised in advance for IRS purposes.

As Museum Curator, "conflict of interest" prevents my appraising donated items, so I referred the individuals to reputable collector/dealers for evaluation. Once the appraisal had been made, all communication stopped.

A little investigation proved the would be donors used the appraisal for sale purposes and had no intentions of donating the equipment to the Museum. This will not happen a third time.

In conclusion... do you know what professional appraisers charge ? Frequently, it averages 10% of the appraised value.....enuf sed.

OTHER COLLECTIBLES

Tired of collecting old radios ? Try this for a change.... I was just reading that old road maps are now being sought by collectors. They used to be given away at the local gas stations until a few years ago... remember ? Maps came on the scene with the popularity of the automobile after WWI. Prior to the War, there were few good hard-surface roads. It wasn't until the 1916 Federal Aid Highway Act that construction of high-quality, long distance roads really began.

By 1925, the national system of numbered highways went into effect and with it the need for maps. The main source of maps was your friendly gas station. The gas crunch and high printing costs of the 70's have just about eliminated the "freebies".

The value of old oil company maps varies tremendously depending on year, condition, contents and local demand. Road maps from 1920-1930 generally sell somewhere between $2 to $6. 1930-1940 average $1 and $3. Road guides (booklets) before 1930 sell for as much as $30.

HARD TO BELIEVE

Members are again requesting loan of AWA historical slide shows (with tape commentary) for club programming. As noted in previous Bulletins, the shows have not been available for the simple reason AWA has had difficulty in having them returned.

On several occasions the Association has had a third party pick up the material from the offender and mail it back to Headquarters at our cost!

The Committee has come up with a solution. Several programs will be available providing the borrower deposits in advance the cost of the show. The amount will vary from $100 to $400. (Movie films will NOT be available). The deposit will be returned when the slides and tape are safely returned. Write for information.

THIS BUSINESS OF HERTZ

I still receive letters on the subject "cycles vs Hertz". Those in favor remind me that Hertz is specific and indicates "cycles per second"... On the other hand, Bob Billings says he never heard of anyone confusing 110 volts, 60 cycles as being "cycles per month, etc." I do have to agree with Don Sutherland (ZA2AJL), a most knowledgeable historian, that at times one needs to be specific and define a frequency such as "Hertz". However, in a recent letter he laments that confusion exists with the term even in learned circles (?). He cites an example in an Australian Government publication which repeatedly specifies, quote: "---consists of tones 1,000 Hertz per second"... and

[Continued on page 20]

ARTHUR WEHNELT & HIS WONDERFUL CATHODE

by Thomas H. Briggs, Orefield, Pennsylvania

Electron tube engineers have used the oxide-coated cathode for 75 years. It has generally been known also as the Wehnelt cathode. Behind every innovation there stands a man. Who Wehnelt was, and what he accomplished are questions which merit more than passing thought. Strangely, the literature on electron tubes and oxide cathodes has been completely silent concerning this man and how his famous invention came about.

Arthur Rudolph Berthold Wehnelt was born in Rio de Janeiro, Brazil, on 4 April 1871. He died in Berlin on 15 February 1944, having seen hundreds of millions of radio tubes produced as a result of his invention. His father, who was an engineer and factory owner, doubtless provided him with inherited talents in scientific and practical aptitudes. He studied physics first at the University of Berlin and then at the University of Erlangen, where he received his doctorate in 1898. There he remained until 1906. While there he made his famous oxide-cathode discovery. In 1906 he moved to the University of Berlin as a full professor. In 1926 he became director of the Physics Institute, before returning in 1938.

Wehnelt was well known for his studies concerning discharges in rarified gases, cathode rays, canal rays, and X-rays. In later years he became involved in development work on tubes for X-rays and oscillographs. He also distinguished himself with work in photo-electric and secondary emissions, mass spectra, and the thermal conductivity of metals.

Just these contributions were sufficient to brand Wehnelt as a deep thinker, a patient and practical experimenter, and well into the advanced areas of physics. Such was the man who followed a minute observation to the conclusion, a habit which resulted in his greatest contribution. Note that at that time no radio tubes existed. Even the application of the "*Edison Effect*" as a wireless detector by Fleming was still two years away.

In 1903 Wehnelt was checking Richardson's work concerning emission of electrons from hot bodies. He was using a hot platinum wire to decrease the drop in cathode potential in a gaseous discharge. Suddenly he observed a tell-tale bright blue glow as cathode rays were emitted from small areas of the wire at unusually low temperatures and with exceptionally low anode potentials. He assumed that impurities had lodged on these small areas, and thought them to be metal oxides from the stopcock grease of his vacuum system.

At this point most workers would have continued with the original experiment, without digressing to determine more about the "impurities". Not so Dr. Wehnelt. He made detailed follow-up tests with many substances. From these he determined that the oxides of the alkaline earth metals in particular gave the best electron emission. Thus was born what became the barium/strontium/calcium oxide-coated cathode, used almost universally during the life of the industry.

Arthur Wehnelt

Why did Wehnelt become so excited by emission from these "*impurities*"? It had been known from the work of Hittorf and Crookes that cathode rays could be deflected magnetically or electrostatically. However, because of their high velocity the power required to deflect them was not conveniently available.

With more copious emission at lower anode voltages, these slow speed electrons could be deflected with far greater ease. For purely scientific work this was easily recognized as a real boon. Practically, less heater power was needed, also.

Continuing, Wehnelt showed that Richardson's equation was valid for pure metals and also for oxide-coated emitters. In 1904-1906 he suggested use of oxide emitters in diode rectifier tubes. For this he obtained German patent DRP 157,845. That patent had a convention date of 15 January 1904.

The first known practical use of an oxide cathode was by Robert von Lieben in his gaseous amplifier tube, patented in 1906. That tube could not have functioned without slow speed electrons, which could be readily controlled in their beam.

Extensive use of the oxide cathode occurred in 1912 when Telefunken placed von Lieben's LRS tube in production. Then H. D. Arnold employed a similar emitter in his high vacuum version of the Audion which was placed in production by Western Electric Company starting in 1913. Arnold has since stated that half a million oxide-coated filamentary emitter tubes had been produced by the end of World War I.

What happened to the Wehnelt patent and his suggested use for it in a rectifier tube? That, in turn, forms another interesting saga. The patent was acquired by ACCUMULATOREN FABRIK AG of Berlin-Hagen. That firm established a tube laboratory. Probably this was the first one in the world! The rectifier use was followed to a successful product. It contained the oxide cathode and low pressure mercury vapor. A second patent in Wehnelt's name was issued in 1906.

Reference has been made in the literature that Siemens asked the battery company to undertake a study project concerning the effects of temperature and pressure of mercury vapor as they might affect the Lieben tube. It was confirmed that indeed it would be almost impossible to achieve a stable and low-noise tube with the mercury filling. But why did Siemens seek out the aid of a battery manufacturer?

About 1900 Thomas A. Edison had become interested in battery-powered electric automobiles. He hated the smelly gasoline cars then just becoming available. Moreover he had developed a successful alkaline storage battery. A handicap towards its use was lack of an efficient and economical means for recharging the battery.

An early associate of Edison had been Sigmund Bergmann, a young German immigrant. His rise to ownership of a prosperous machine shop is another story. About 1900 he returned to Germany as president of German Edison Accumulator Fabrik AG. Difficulty in producing the Edison alkaline battery caused its withdrawal from that market, and concentration upon the standard lead-acid battery. The "*German Edison*" was dropped from the name, but Bergmann remained as president. He later became a power in the German electrical industry.

The need for a means for recharging batteries was of paramount importance. It was quite logical for the company to acquire the Wehnelt patent and to continue engineering development activities.

Siemens had long been associated financially with the US General Electric Company, as well as with the several Edison companies in Germany. It was quite natural for Siemens to turn to Bergmann's company to aid in the mercury vapor investigations, and thus to seek to control the Lieben tube in 1912.

Wehnelt's work provided a practical electron emitter. Yet the real mechanism of electron emission continued to require worldwide research until the 1960s. Electron tubes used a cathode for which theory was not well understood until almost the end of the major production volume.

How fortunate for the world that Professor Wehnelt was a keen observer, a patient researcher, and yet was able to vision practical applications for his work!

Close-Up

[Continued from page 18]

"the response at 6,000 Hertz per second... etc.." How about that !

OUR COVER

Several members asked the location of the NBC remote broadcast on the cover of the June OTB. The picture was taken at the 1932 America's Cup Race, Newport, Rhode Island.

PRICES . . . . .

They tell me that collector/dealers who wish to double, if not triple their investment, should make an overseas connection for selling radio equipment. There are several pseudo-collectors in U. S. A. who buy and sell overseas at a handsome profit. Lauren Peckham, returning from a trip to Switzerland, tells of the demand for early radio equipment. Agents from several European countries as well as Japan are seeking all kinds of artifacts.

Early radio items are scarce abroad for several reasons: low production plus possible one-time government restrictions. In addition, receivers were confiscated in many occupied countries during the wars and never returned.

---73, BK

The TUBE COLLECTOR

Editor: Lauren Peckham
Ormiston Road, Breesport, NY 14816
All correspondence requires SASE for reply

RAYTHEON 4-PILLAR TUBES

by Alan Douglas

Every tube maker had his gimmick or sales pitch – Arcturus had blue tubes, Majestic had spray-shielded ones, and so on – but inside, most of them looked pretty much the same. Except Raytheon.

Raytheon's "*four pillar*" design must have been more expensive to build, and it was doubtful that it was any more rugged than ordinary construction, but they made tubes that way for perhaps ten years. They turn up often enough now to make it a challenging, but not impossible, endeavor to make a display of the various types.

Raytheon first adopted the four-pillar style when they began making tubes other than BH rectifiers, under RCA license, about November 1928. In June 1929 Raytheon formed a partnership with National Carbon Company, marketing their tubes under the name "*Eveready Raytheon.*"

This lasted until early 1933, when National Carbon gave up any hope of making money from radio, and Raytheon went back to tube-making under their own name. For a detailed history of Raytheon, see "*The Creative Ordeal*" by Otto J. Scott, 1974. Copies of this book (in paperback) were mailed to every Raytheon stockholder in 1975, and should be available in used-book stores by now.

Tube cartons: l. to r. 1928, 1929, 1933 and 1934. Misc. samples in foreground.

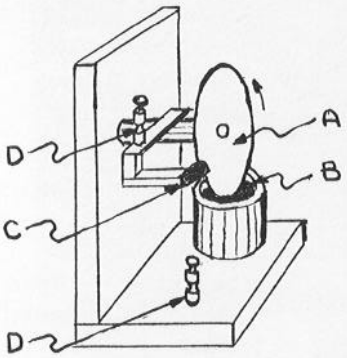
JUNIOR WIRELESS CLUB
Devoted to wireless development before 1912

THE LODGE-MUIRHEAD COHERER

In England, during 1902 and 1903, Lodge, Muirhead, and Robinson designed a coherer consisting of a slowly revolving steel disc 'A', rotating extremely close to a column of mercury 'B', but separated from it by so thin a film of oil that the insulation is broken down by about three quarters of a volt.

It is connected across a potentiometer and battery so as to have a third of a volt across its terminals. An increased difference of potential due to a wireless signal causes a complete breakdown of resistance, but immediately the signal ceases this again becomes infinite as the wheel revolves.

The wheel is driven by a clockwork which also drives a syphon recorder. A felt pad 'C' keeps the wheel clean, and connections are made to binding posts 'D'. The column of mercury is adjustable up and down by a knob at the top of the coherer.



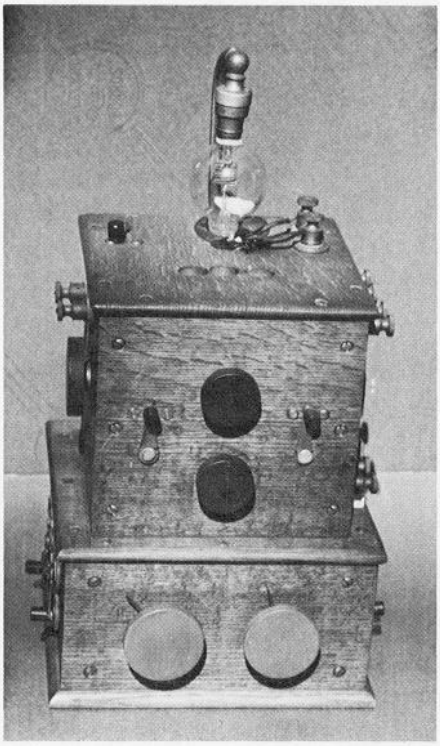
Though not so simple as Marconi's magnetic detector, it was quite reliable and, unlike the filings, or tripod, type of coherer, did not have to be tapped to restore its high resistance.

In later years, about 1912, it was used by John Hammond, Jr., on one of his radio-controlled boats.

Linc Cundall

References:

C. C. F. Monckton - "Radio Telegraphy" 1908
B. F. Miessner - "Wireless Control of Torpedoes" 1916



FIRST REGENERATIVE DETECTOR

Pictured is a replica of a regenerative detector made by Major Armstrong in 1913. It is believed the replica was made in the 1920's for use in one of Armstrong's numerous patent litigations concerning the feedback circuit. This rare artifact was donated to the AWA Museum by Stewart Davis, W2ZH.

(Photo by W2BWK)

75th Anniversary
1907 - 1982
De Forest Audion

Canadian Broadcasting Corporation | Société Radio-Canada

5 August, 1982
Maison de Radio-Canada,
1400 Dorchester East,
17th floor,
Montréal, Canada,
H3C 3A8

Mr. Bruce Kelly,
Main Street,
Holcombe New York 14469,
U.S.A.

Dear Bruce,

I would like to thank you most sincerely for all the time and effort you put forth to make possible our filming at the Radio and Communications Museum. The day we spent at East Bloomfield was one of the most useful in all our filming of the story of Guglielmo Marconi, and we were extremely impressed with the collection that you and the other members of the Antique Wireless Association have so carefully assembled during the years. To see so many examples of early radios in a working state was truly remarkable.

Our one-hour film on Marconi will be seen on the CBC english network thursday evening, December 9. It will be seen on the Italian TV network December 15, and at a date to be decided on our french network here in Canada. I am sure you will want to see it, so we must somehow arrange for you to see a cassette of the program, unless you are able to receive CBC from Toronto. In any case, we can at some later time discuss the use of the program, if you want it, for your convention next year.

We will be sending along a small but more concrete expression of our thanks shortly, but in the meantime, once again our sincere thanks to you and to the Antique Wireless Association.

Yours sincerely,

Richard C. Bocking,
Producer TV

AWA ASSISTS IN MAKING MARCONI FILM FOR CANADIAN BROADCASTING COMPANY

The above letter was received from the Canadian Broadcasting Corporation. Members may see the television program at the times noted. This is one of the three films made at the AWA Museum during 1982.

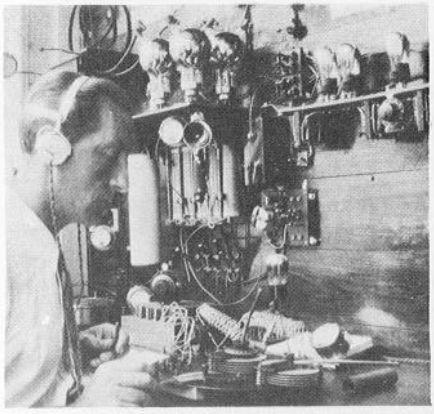
AWA is pleased it could assist in making the one hour documentary on Marconi's life. Why was our small museum selected for part of the film ? Very simple. It appears that AWA is the only place which has a large quantity of early Marconi apparatus in operation.

Filmed were closeups of Marconi coherer receivers, magnetic detectors and spark transmitters -- all in operation ! In fact, code signals were simulated of the famed letter "S" and the Titanic distress signals.

The AWA Museum has over 20 pieces of early Marconi gear, ranging from a 10" spark coil to a 1000 watt quench gap spark transmitter. In addition, there is a large collection of early Fleming valves including the 1905 speciman, a gift from the British Marconi Company. Many of these items are NOT on display, but for security reasons, are housed separately.

PIONEER STATION EF-8CT

A section of the Biraud Museum in Fontenay-Le-Comte, France. A collection of over 300 sets makes it the largest private museum in France. At far right is the 8CT station display. Guy and his daughter Catherine attended the recent AWA Conference at Canandaigua.



EF-8CT at his 10-meter transmitter in 1928.

In 1928, Charles Atwater, 2JN, worked French station EF-8CT for the first 10 meter trans-atlantic contact. A picture of 2JN appeared on the cover of the September '81 *OTB*.

This prompted AWA member Guy Biraud (Fontenay-Le-Comte, France) to write telling that he had 8CT's original transmitter in his museum! A second letter enclosed two pictures: one of 8CT operating the transmitter in 1928 and another of Guy's museum. History documented and preserved!

OT TRANSMITTING
CONTEST
Wednesday, Jan. 12
Thursday, Jan. 13

Saturday, Jan. 15
Sunday, Jan. 16

KEY and TELEGRAPH

Editor: Lou Moreau, W3WRE
305 N. Llanwellyn Avenue, Glenolden, PA 19036
All correspondence requires SASE for reply

QUE: How did European wireless keys differ from ours in construction and size ?

ANS: Short of the straight lever that is indicative of keys of most of the world (other than North America) the Europeans utilized, and still do, an open circuit system. Thus we find the contacts located at the rear of the lever. In most cases, the keys did not differ in size from those in this country.

QUE: Did each country require that their keys be used by their operators ?

ANS: Not always. Remember that ever since the earliest days of the telegraph industry, the operator was permitted to work with the key of his preference. We find, for example, that a German Slaby-Arco key was used in 1906 (Fig. 1) on board the USS Chicago to relay railroad train orders after the San Francisco earthquake. These so-called "door-knob" keys were excellent instruments with a very smooth action despite their clumsy appearance.

Most English wireless operators, particularly those on ships with Marconi equipment, worked with Marconi Company keys (Fig. 2). These signaling keys with their heavy hardwood bases used the heavy "skirted knob" as an additional protection as was the location of the large shorting switch at the left. This wireless key is identical to the one used to key the Marconi auxiliary spark transmitter on the ill-fated Titanic in 1912. (Both keys from the W2ZI collection now on display at the AWA Museum. Photos: W2BWK.)

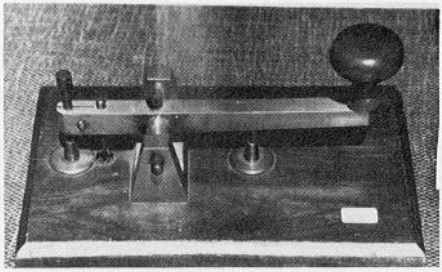


Fig.1 German Slaby-Arco

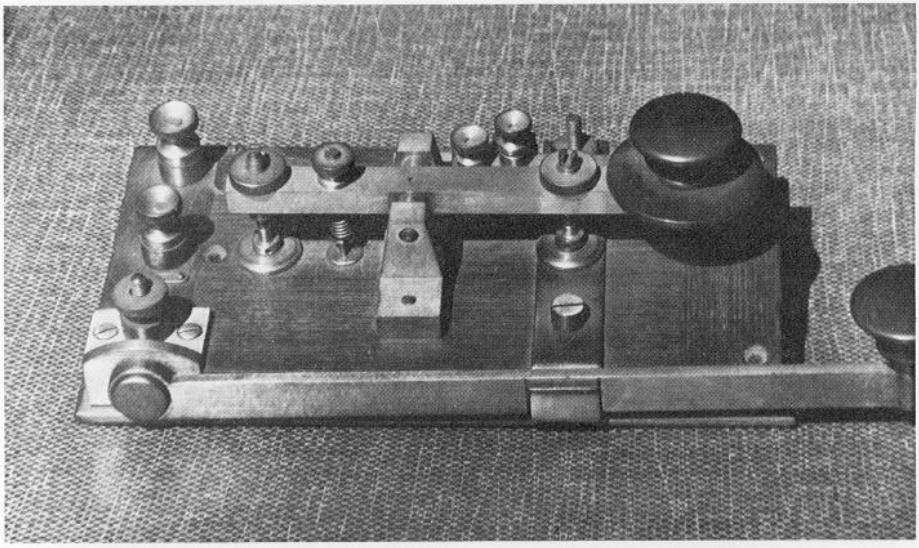


Fig.2 Marconi wireless key circa 1911-12.

OLD TYME HAM ADS

OLD TYME ADS are FREE to members interested in collecting and restoring early radio equipment for personal use.

RULES FOR ADS:

1. Only ONE ad per issue per member. Send SASE for acknowledgement.

2. Material must be over 25 years old and related to electronic communication.

3. Give full name, address and zip (and call).

4. AWA will not print repetitious ads or ones indicating regular sale or profit.

5. The Association is not responsible for ANY transaction.

6. AWA retains the right to reduce size of ad if over SIX (6) lines.

7. Only ONE ad per issue (no doubles).

8. Deadline for ads:

March issue--JAN. 10 Sept. issue--JULY 10
June issue --APR. 10 Dec. issue-- OCT. 10

Ads received AFTER the above dates will be discarded. Mail ALL ads to: (Not Headqtrs.)

RICHARD RANSLEY
17 SHERIDAN ST., AUBURN, NY 13021

WANTED

--Colonial "New World Globe" radio model 700,01 or 02. Neon lamp for Western Television Corp. scanning disc TV"Visionette" Jim Mason, 90 N.W. 90th Ave.,Beverton, OR 97006 (503) 644-2343

--plug-in RF coils #1,2,3,4 and loop antenna for DeForest D-10 reflex.Also any info or diagrams to aid in restoring same. Carl Verderber,WA2UJX,Box 87-D, Rt. 9G.,Rhinebeck, NY 12572

--meter for Precision Model 612 tube tester or complete unit.Also type NE-42 lamps.Have Philips type EBL1,EK2 &EF9 foreign tubes for sale or trade. Craig Larson, 4452 Benjamin St., Minneapolis, MN 55421

--circuit diagram and operating instructions for Superior Model 1280 tube tester, base for RCA UZ 1325 speaker,homebrew Acme reflex receiver. Bill Jelinek, 128 N. Stevens, Rhinelander, WI 54501

--any data,manuals,schematics or advertising material related to Remler Super Hets. T. Drogoski, 507 Cool Valley, Clairton, PA 15025

--Marconi magnetic detector 1905, driver only for Magnavox loudspeaker, AK breadboard Model 10 in excellent condition with tubes or other similiar model, Radiola IIIA and "Vitus" French wireless sets also wanted. Tamburini Alain, 53 Rue E. Herriot,70300 Luxeuil, France

--Radiola Superhet Model AR 812 right side battery compartment cover and one knurled station indicator retainer knob. G.G. MaConomy, W6BUK, 36770 Florida Ave., Space 10, Hemet, CA 92343

WANTED

--Marconi tube socket as used in Canadian Marconi Type "C" receiver(V.R. page 117). Thin rectangular base with nickel plated brass shell. Doug Brighton, Box 158, Hanover, Ontario, Canada N4N3C4

--Hammarlund Comet Pro receivers. Am building a collection of each model of Comet Pro manufactured. Howard Hill, KE6AZ, 4117 Lymer Drive, San Diego, CA 92116, (714) 281-8732

--technical info on Meissner signal shifter Model 9-1090. John Uscinowski, RR#1, Box 379, Greenwich, NY 12834

--Riley Radio power unit manufactured in Attica, Ind. in 1926. James Fred, Cutler, IN 46920

--old "EKKO" stamps and cards used by early US-Canada-Mexico BC stations circa 1920-30 to verify DX reports from listeners. Donald deNeuf, WA1SPM, 602-B Heritage Village,Southbury,CT 06488

--75TH tubes and pre-1950 Collins radio equipment wanted. Paul Kluwe, PO Box 84, Manchester,Mich. 48158

--Philco advertising material prior to 1930.Also pre 1928 Philadelphia Storage Battery Co. radios. Thomas Estes, 7723 Willowmint, Houston,TX 77086 Telephone (713) 440 1218 7-9 CST

--Vibroplex Vertical bug and Bunnell Gold Bug. Have spare Vibroplex Dual Lever for trade.Aslo need Cootie key. Neal McEwen, 1128 Midway, Richardson,TX 75081 Tel. (214) 234 1653

--operating manuals for tube testers Jackson 103 and/or Hickok 6000A. Copies OK. Bill Emick, 353 Ann St., Chadron, NE 69337 Tel. (308) 432 5725

--parts for a Hammarlund HQ-140XA. Ed Best, 2004 University Drive, Durham,NC 27707 Tel. (919) 489 2164

--Philco cathedral 1931 model 70B or 90B escutcheon plate and set of control knobs or entire radio and cabinet of same year and model. Jim Huska, 2705 Rincon Drive,Grand Junction, CO 81503 Tel (303) 245-1975

--1938 Zenith with Bakelite chassis having all parts molded into it ie; resistors,condensers,6 tube sockets etc. Need any info from anyone who has such a set or who is familiar with it.. Alan Douglas, Box 225, Pocasset, MA 02559

--Masterpiece III power resistor values. Also sales/owners manuals for Stewart Warner Model 301-A & 102-A...Xerox OK. R. Lozier, 600 Green St., Monroe, NC 28110

--Howard "Progressive Series Plan" parts including IF xfmr,xtal,schematic,etc. to convert Howard 435A Recvr to 437A. Also need Collins 3 or 6 kc mechanical filter for 51J-4 (500kc IF).L.B.Zimmerman, 8448 No. Harding Ave.,Skokie, IL 60076

WANTED

--plug-in coils for Hammarlund SWK-6, Meissner 18-3500 series. Also need "Hammarlund Shortwave Manual", Post WWII Knight & Meissner regen. sets in any condition. David Burns, WA3WHR, 4109 Queen Nary Dr., Olney MD 20832

--Aeriola Jr detector,Amrad detector assy.,Radiola IV doors,CR 5,Crosley 50A panel & box,mint Trirdyne special cabinet. Will sell or swap QST's,magazines, O1A's.Merrill Bancroft, 169 S. Row Rd., Twonsend, MA 01469

--operating manual and tube chart supplement for Precision #10-12 tube tester. Copies OK. Luther Schubert, 1845 S.W. 29th St., Allentown PA. 18103

--information on "The Radio Shop" in Sunnyvale, CA in the 1920's. Will Jensby, 1460 Lewiston Drive, Sunnyvale,CA 94087 Tel. (408) 738-3595 (Note new address)

--Crosley model 706 tuning drive gear. Lawerence Moser, 2570 S. Valley Hwy.Ser. Rd., Denver, CO 80222

--DeForest sets & parts, early AC sets using Kellogg tubes (especially Rogers, Marti,Pathe),suitcase type pre-1930 portables and pre-WWII TV's.Cash or trade. M. Rosenthal, 507 S. Maryland Ave., Wilmington, DE 19804

--Kodel microphone type speaker,advertising signs,microphone. Buy or trade. A.R. Nolf, 620 Auburn Cr., Burlington, Ont.,Canada, L7L 5B2

--need info on The Radio Shop METEOR 3 tube regen. cabinet. Have set but no cabinet. Art Harrison, 1021 Falcon Dr., Columbia, MO 65201

--chassis for Freshman Masterpiece Cathedral and Philco 60.Also Music Master horn bell and Rider's Vol. I. Have many radios and speakers for sale. SASE for list. Gary Hill, 1507 Ridge Ave. New Castle, PA 16101

--help-I bought a no-name paper cone speaker from someone at Canandaigua meet and forgot to pick it up. Please write Dallas Swindal, 1112 San Jose Lane, Hanahan, SC 29406

--Camfield Duo-formers (ant & RF) for Infradyne work. Will take Thorola Dougnut coils as a second choice. Rodney Schrock, 402 Lincoln St., Somerset, PA 15501

--160 meter bandspread coils for FB7, original tuning knob for FB7. SW3 coils and power supply . Ted Gillett, 14840 Broadmoor St., Van Nuys, CA 91402

--Miessner products,especially "signal drifter" exciter. Also looking for Morse cw items as keys,bugs,switching equip. and documentation,catalogs etc. Bill Bradford, 3891 Seagull Drive, Salt Lake City,UT 84120

--information on Meepon crystal set.When and who manufactured it. Expenses refunded. David Smith 92 Roston Drive, Hinckley, Leicestershire, England Postcode LE10 OXP

--Collins 51J4,must be complete with all parts but need not operate. James Reid, W5HGL, 656 East Madison,Houston,TX 38851

--complete Vol.II Rider's radio manual, numerous a.c. set parts such as knobs, IF and audio xfmrs,speakers and tubes. Carl Elkins,AI4P, 1701 Woodland St., Nashville, TN 37206 Tel. (615) 227 7972

--schematic for a Thomas Edison cathedral radio using 1-80,2-47,1-56,3-24A tubes.Need power xfmr and someone who rewinds audio transformers.,C.Golodich, 23 Benson St.,West Haverstraw,NY 10993

--"The Transistor Radio Handbook" by Donald Stoner and Earnshaw 1963.Published by Editors and Engineers Ltd. J. Cirillo, 6330 Solona Circles., Ft.Worth,TX 76117

--early AC radios with metal cabinets. Also any supplementary tube charts for Superior Inst. model#1240 tube tester. Copies OK.Have good O1A's and AK53 metal floorset to trade for Philco 37-84.Brian Rhodes,2413 Grier Ave.,Linden,NJ 07036

--tuning condenser assembly for Bremer-Tully A.C. Counterphase,Federal and Freed-Eisemann AFT's,voltmeter & Pyrex UV sockets for Garod V,Federal A-10 cabinet,AK Model E spkr coil. H. Faulkner, 6130 10th Ave.,S.W.,Naples, FL 33999

--amateur station callbooks 1935 thru 1941 and any Collins radio printed material 1933 thru 1937 for xmtrs. C.E. Filley, W7KE, 1109 S. 2nd St., Hamilton, MT 59840

--Zenith sales brochures 1934 to 1938. Also want manuals for capacitor checkers C-D Model BF-60 and McMurdo-Silver Model 904.Xerox OK. Don Knotts, W7HJS, 3158 N.E.Azalea, Hillsboro,Or 97123

--old horn speakers and drivers in working condition,Edison cylinder phonos w/horns,working or not,any cathedrals. Randall Tvedt,122 Ridge Dr.,Apt.6, Mt. Horeb,WI 53572, Tel. (608) 437-3425

--Federal 141 cabinet,Harko Sr and Two Stage Amp. panels,Amplion Dragon AR-19 driver. Richard Jehlik, 8320 North 28th Ave., Omaha, NB 68112 (402) 393-7124 after 7.

--calibration procedure for Hickok model 209A VTVM made in the late 1940's. Howard Adams, 209 West Shadywood Drive, Midwest City, OK 73110

--RCA Victrola Credenza & Edison Opera models.David Yo,PO Box 832,Monterey Pk., CA 91754 (213) 576 2642

--manuals & info on Dumont 164-E scope and Speco Signal Tracer Amplifier.Xerox is OK. Also 1936 & 1937 Super Pro Manual. Bill Taylor, Box 132, Unionville,PA 19375 Tel (215) 347-2381

--VK4SS looking for spark gear,horn speakers, high impedance headphones, 2 to 4 inch bakelite 0-100 dials, 201's old terminals,bussbar wire,Telegraph keys. Alan Shawsmith, 35 Whynot St., West End, Brisbane, Q4101, Australia

NOTE: Ads mailed to Holcomb will NOT be printed. See Rules on page 26.

WARNING!

Members are advised NOT to buy Marconi, DeForest and other rare equipment without first checking the dealer's credentials. Fake pieces have been sold recently, mostly to overseas collectors. Before any sale, may we suggest you check dealer's AWA membership by writing to Treasurer: Lincoln Cundall, 69 Boulevard Parkway, Rochester, N. Y. 14612. And a repeat: AWA does NOT have a member on Alderton, Forest Hills, N. Y. See page 27, Sept. '81, "Bulletin".

FOR SALE/TRADE

--AK breadboard (1922-23) with coupled ckt tuner, variometer, Det., 2 stage amp., Model H AK horn speaker. Bert Picard, 62 Hortense St., Rochester, NY 14611 Tel. (716) 235-4045

--Musio AC-5 in good condition, $75 plus shipping; Western Electric 2-A photo-electric cell in original container, Arborphone 45 in very good cond. $60. Bill Hurni, W3HWT, 329 Evergreen Dr., North Wales, PA 19454

--1928 Majestic 70 Highboy vg cond., with orig. paper; pre-1940's RCA 7K1 floor model & Westinghouse H-103 table model. Want pre-1935 battery or AC sets. Need knobs, pointer, vol. control for AK47. Christopher Bacon, 193-04 53rd Ave., Flushing, NY 11365

--Navy DZ-2 direction finder recv. $75., WWII Navy BN IFF Transceiver $25., Altec Salt shaker microphone $50. plus shipping charges on all above. Wayne Chapman, Apt. B-218, 1130 North Lake Parker Ave., Lakeland, FL 33805

--Crosley 50, AK 84, Federal Jr., RCA superhet, lots of QST's and manuals. Also tubes. SASE for list. Merrill Bancroft, 169 S. Row Road, Townsend, MA 01469

--antique radio and instrument collection of about 70 pieces from 1918 to 1935. Also numerous tubes and parts. SASE for list. Will sell only as a complete collection. E. Joe Antoine, RR#2, Box 7, Hope, British Columbia, Canada VOX 1LO

--Sam's Photofacts sets 1-1703 all in fair to excellent condition. Best offer over $2500. Glen Buel, Box 21 R.R.#1, Crown Point, NY 12928

--trade very early QST's. Want RME-9(D). Bob May, K4SE, Box 453, Jonesboro, TN 37659

--cloth covered AC line cord in gold or brown, 26¢/ft. or $22/100 ft. Brown Radiola Loop Antenna wire, 12¢/ft or $38 for 500 ft spool. Shipping is $2 per order. SASE for free wire samples. Bob Goodman, 7943 Ponce, Canoga Pk., CA 91304

--older tubes-all new in original boxes. Some are very scarce with some foreign. $3 each. Must take all. James Notaris, 1100 Welsh Road, Ambler, PA 19002 Tel. (215) 646 3631 evenings after 8

FOR SALE/TRADE

--Radio News, Shortwave Craft, Radio World, Popular Radio plus many fore from 20's to 1940. Reasonable. SASE for list. Want AK 3902 detector tube unit. Vinny Shea, 6 Rocky Ridge Road, Easton, CT 06612

--antique tube collection, old recvrs, misc. equipment. SASE for list. Want Marvel crystal receiver, mint AK breadboard. Don Whittemore, W2CUZ, 36 Masterton Road, Bronxville, NY 10708

--Atwater Kent Model 9 type 4445, 4052, 3955, 4340, 4700, one tube three circuit, one tube with variocoupler and variometer. SASE for list. Joe Horvath, 522 Third St., San Rafael, CA 94901

--trade Japanese WWII transmitter, recvr, headphones, throat mike & key for WWI Navy key or detector. Joel Kosoff, 2421 Shamrock Rd., Skaneatles, NY 13152

--Majestic Model 90/91 receiver, original and working with spare tubes. Is floor console. Asking $150. Dave Beck, Box 421, Millerton, NY 12546 (518)789 3809

--Federal 110, $390; Crosley S-38, $65.; Magnavox horn R3-B, $85; DeForest F-5, $275; trade/sell Lord Calvert 4 tube novelty, Amplion Bell & driver, Falck radio shown in V.R., Brightsons. Floyd Paul, 1545 Raymond, Glendale, CA 91201

--Radiola III and IIIA with or without tubes in like new condition. Also transistorized WD-11's and 01A's for small sets to run on one 3 to 9 v batt. Want 239-A W.E. tubes. Bud Bedker, 66 Cloverside Ct., West Seneca, NY 14224

--ARRL Handbooks 1927 & '33, Rider's Vol 1 plus many technical & construction books of 20s & 30s, variometers, Freed-Eismann NR6, loosecoupler & many parts. Richard Cohen, 13913 Hayward Place, Tampa, FL 33624

--Battery & AC radios, hornspeakers, projection tv, AK 10-B, Riders Manuals. SASE for list., Al Mackenzie, 2109 Whitman NE, Renton, WA 98055

--Rider's TV manuals- Vol.2 $15, Vol 3 $10, Vols 4,5,6 $7. ea., radio Vol 19 $15. All plus shipping. A. Smith, Stonehedge, Lincoln, MA 01773 Tel. (617) 259-9351

--trade Grebe CR-8 (nice original) or AK Model 10 breadboard for National NC-5 or equivalent Lafayette chassis model converter. Charles Byrnes, 1201 Sycamore Terrace- #102, Sunnyvale, CA 94086

--early AC radio tubes from 1927 to early 1930's. SASE for list. Want to buy or trade for a AK type M speaker base. Also base for UZ 1320 or 1325. Herman Fothe, 10 Jackson St., Sloatsburg, NY 10974

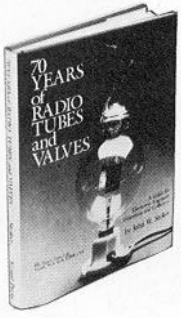
--Philco 20, Radiola 20, AK 40 and spkr, Riders Chanalyst, Radiola 60, Kennedy XV, Radiola loop for AG 814, Collins 75A1 with matching spkr. SASE for complete list. List 82-1. David McKenzie, 170 West 53rd St., Hialeah, FL 33012

--Minifon P5S wire recorder, Magnecord M30, HQ-180. Want Pilot Super Wasp, Sky Buddy. Milt Kessie, 16820 Hubbard Rd., Livonia, MI 48154

On Review

70 YEARS of RADIO TUBES and VALVES

by John W. Stokes



This new 250-page book has been proclaimed by experts as one of the greatest publications ever to appear on the history of radio!

Order your copy through your favorite bookstore or other dealer, or direct from The Vestal Press. $21.95 plus $2 for mail or $3 for UPS. (NY residents add 7% sales tax.) Or call (607) 797-4872 anytime. MasterCard, VISA, American Express cards welcome. Dealer inquiries also welcomed!

The Vestal Press Ltd PO Box 97 Vestal 12 NY 13850 USA

"70 Years of Radio Tubes" is considered the best book written on radio for the collector/historian in recent years. This is the consensus of six members who reviewed it before release. Write and let us know your thoughts. (Note: The price of $21.95 is standard for present-day technical books. It will not be reduced.)

CONFIDENTIAL FREQUENCY LIST

After much labor, Gilfer Associates has published another book listing frequencies and indentification of thousands of shortwave stations. The listing is mind-boggling! The stations are listed in order of frequency as well as by call sign. Here are some examples:

FSB69 7832.0 kHz. Paris, France (Interpol) 3.0 kw.

JTD27 10,185.0 kHz. Ulan Bator, Mongolia 10 kw.

WCM 17,291.8 kHz. Pittsburgh, Pa. (Inland waterway service)

If you own a shortwave receiver and like to tune across the bands, the book will prove invaluable. Cost is $9.95 plus postage. Gilfer Associates, Box 239, 52 Park Avenue, Park Ridge, NJ 07656 —*B.K.*

EARLY DAYS OF WHEELER & HAZELTINE CORP.

by Dr. Harold A. Wheeler

The Hazeltine Corporation was founded in 1924 to manage the Hazeltine patents. The first important patent was, of course, Louis Hazeltine's neutralization circuit. This invention, however, lost its effectiveness in the TRF receiver with the introduction of the screen-grid tube in 1928.

Other designs/circuits such as Harold Wheeler's automatic-volume-control (AVC) placed the company in a dominant position second only to RCA. The collector/historian will find the book intriguing since it clarifies the many problems (including patent litigation) of early radio manufacturing.

Published by Hazeltine Corporation, Commack, NY 11725 – 1982, 432 pages, hard cover. $30.00.

(Reviewed by Bob Allen)

N. V. PHILIPS

I recently reviewed three books covering the history of the N. V. Philips Company of Eindhoven, Holland. Philips is the world's largest electronic organization with manufacturing facilities or offices in over 70 countries. They own several companies in the USA including Sylvania, Amperex, Magnavox and Centralab.

Growth of an Enterprise,
The Life of Anton Philips
published by Macmillan

45 Years with Philips,
The Life of Anton's son, Frederick
published by Blandford Press (Poole, Dorset, U.K.)

50 Years of Electronic Components: 1921-1971
published by N. V. Philips, Eindhoven, Holland

Fascinating reading for the advanced radio historian and researcher.

--- Jack Chauncey

Who's Who Due to lack of space, there will not be a listing of new members in this issue. Nearly 200 names have been added to the AWA roster !!

REPAIRING MAGAZINES

by Alan Douglas

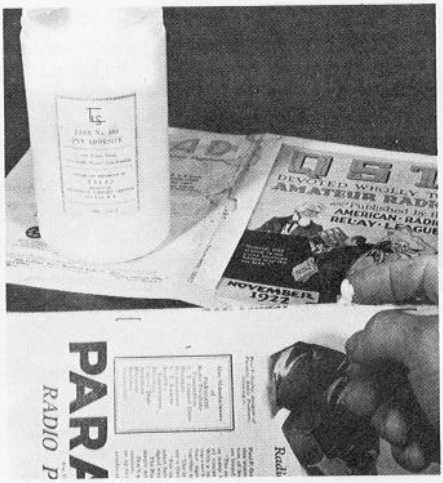
Early magazines are increasing in value, particularly those with covers. If possible, the collector should salvage those that are marginal. This is an example.

There are plenty of wrong ways to mend magazines, and most of them have to do with adhesive tape. Whether Scotch tape, "Magic Transparent" tape, masking tape, or (yes, I've seen it) black electrical tape, they're all the same. Forget them! No adhesive tape ever made, or likely to be made in the future, is permanent. Don't let the collectors of 100 years from now curse you, as they try to remove the sticky residue of adhesive tape from your "*restorations*."

Library paste or white PVA (polyvinyl acetate) glue is just fine for mending torn paper, and if the paper needs reinforcing, a bit of mending tissue pasted over the area is nearly invisible. Elmers glue is ok, but if the repair is at a hinge where the paper must flex, you should use a softer glue, such as the Jade 403 shown in the photo ($3.25 a pint from Talas, 130 5th Avenue, New York, NY 10011. Add 25% postage. Cannot be shipped in cold weather, below 40°F.).

I'm not suggesting that this issue of QST pictured here, was worth the time to do all these repairs, but I wanted to show what could be done.

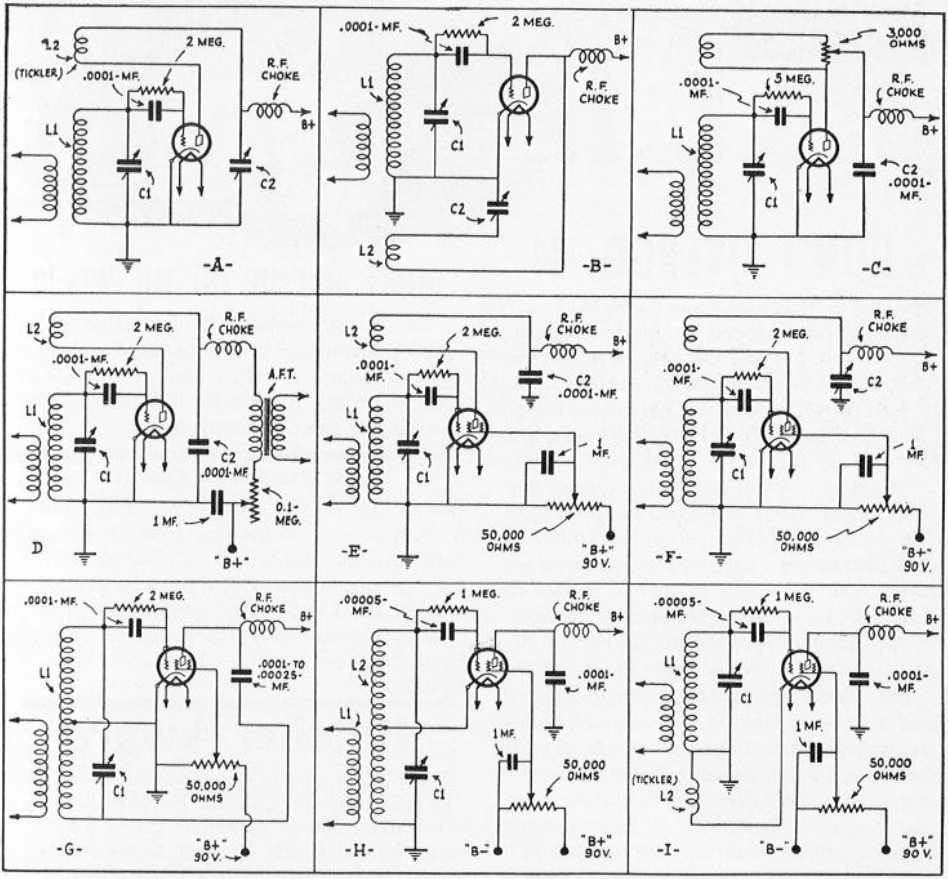
Incidentally, for removing sticky tape, if it's not too old, try soaking the paper from the reserve side with toluene or xylene. Acetone will dissolve the backing of "magic" tape, allowing the adhesive layer to be rubbed away with a rag dampened in xylene. Colored inks will run in any of these solvents, however, as will some modern black inks.



With care, one can save all the remnants of a badly torn cover.

Regeneration Control Methods

– Peter Vanquis



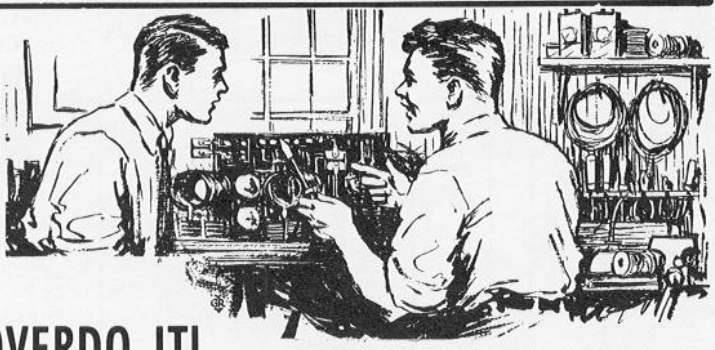
Ever wonder about various methods to control regeneration in early shortwave receivers ? Shown are nine feedback circuits starting with the variable capacitor control (A). Not shown are early broadcast detector circuits using a rotating tickler coil or a variometer arrangement, neither of which were used for shortwave.

Fig. A and B were popular with early shortwave receivers such as the Pilot Wasp. The circuit is quite critical and calls for correct coil design. The main disadvantage is detuning when controlling oscillation. C is an improvement but is noisy with the pot adjustment since plate current flows through the resistor contact. It also causes some detuning on high frequencies. 1-D also suffers from the same effects.

The real break through came with the screen-grid tube where one could design circuits varying the screen grid voltage (1-E through I). F has the advantage of being able to roughly set the feedback with the capacitor and controlling the oscillation with the 50,000 ohm pot. The other arrangements have certain advantages with the different feedback coil positions but I find "I" the most satisfactory.

WITH THE COLLECTORS

PROBLEM SOLVERS



DON'T OVERDO IT!

Nothing is so distressing as a nice old battery set in a wooden cabinet that has been stripped and refinished to look like new. It reminds me of an elderly lady with makeup and dress trying to look 50 years younger! Let me quote from Tony Constable's book Early Wireless, page 68:

"There is a great temptation among new collectors to spend a lot of time and effort 'renovating' old wireless sets as they come into their possession. Unfortunately a lot of so-called renovation can only be described as 'destruction'. Whatever the place of the early wireless set may be at present, it will certainly become of great antique value in the future.

Those sets which have been lovingly stripped and re-varnished will be comparatively valueless in the future when seen alongside the more fortunate, though perhaps dirtier, examples that have escaped the vandalism of the amateur bodger. The serious collector already avoids anything but the untouched originals."

And there you have it. When I see a set that looks like new, I immediately suspect it has been a 'basket case' and start looking for replica parts, etc.

-- Ed Culver, WA2JAA

The TUBE COLLECTOR

Need tubes ? Try these two sources. Prices are reasonable and occasionally they have early battery types:

"Old Radio Place"
616 Nelson St., Rockville, Md. 20850
(Send 20¢ stamp)

Rick Weibezahl
305 Belvidere St., Washington, NJ 07882
(Send S.A.S.E.)

DON'T GIVE UP ON THE WD-11

Sam Sargent writes he has found that applying a soldering gun to the filament prongs of a couple defunct WD-11's brought back life to open filaments. Apparently the leads inside the prongs had somehow worked free.

ED. G. RASER, W2ZI EXHIBIT

The famed Ed. G. Raser, W2ZI key collection is now on display in the Museum. A permanent exhibit, it is housed in a special showcase with each key properly identified with brief description. Members unable to visit the Museum, may read about them in Lou Moreau's "Key Column".

Batcher Award

Congratulations to Lou Moreau, W3WRE, the recipient of the 1982 Batcher Award. This prestigious award is given each year by the Radio Club of America for outstanding contributions in the field of communication. To date, 5 of the 6 recipients have been AWA members.

A.W.A. SLIDE/TAPE SHOWS

The Association plans to give priority this coming winter to making two slide/tape shows for club meetings. Scheduled are: "The Radio/Telegraph Key -- History and Identification" using keys from the W2ZI/W3WRE Collections.

The other is: "The Vacuum Tube-- Early Use and Identification" with tubes from W2GK/W2ICE collections. Both shows will be available to the ARRL and AWA "meets".

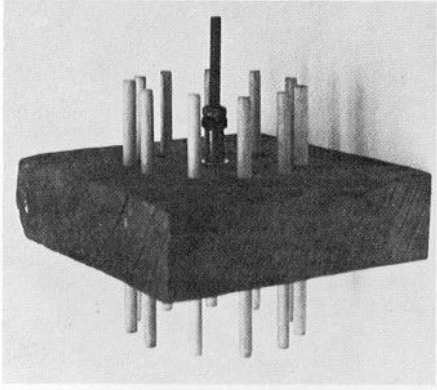
HOW TO MAKE BASKET WEAVE COILS

by Joe Horvath, W6GPB

These coils are highly efficient, very easy to make, and look good in almost any radio receiver, especially if made of green or other colored wire.

Follow these easy instructions: first, get a good piece of hardwood about six inches square and about two inches thick. Next, locate the center in the block of wood, make a good mark, take a pair of dividers and make two circles, one 2⅝ inches and the other 3⅜ inches in diameter. Next, divide each circle into eleven equally spaced markings. Using a 17/64" bit, drill all of the holes in the two outer circles. Make sure to drill them straight. A ¼ inch wooden dowel should slide up and down freely, but not be loose and wobbly.

You will need a bolt about 5 inches long (with lots of threads on it), two flat washers, one spacer about two inches long, and two nuts. The bolt can be most any size in diameter. Drill the center hole according to the size bolt that you will be using.



Assembly is as follows: take the long bolt and put a flat washer on it. Run the bolt thru the center hole, put on another flat washer, then the spacer, which can be metal tubing and then the two nuts.

Now run one nut up so it is too tight to turn. Now back off on the nut just enough so it turns freely. Run the second nut all the way and tighten good and tight. This is a lock nut and keeps the whole assembly from coming apart.

Next, cut the ¼ inch wooden dowels into 5 inch pieces and insert them into the wooden block. Place the center bolt in a vise to steady while the block is turned as the coil is being made. Don't damage the center bolt threads in the vise.

Now you are ready to start winding your coil. Wrap a full turn of wire around a wooden dowel. Leaving about four inches for a coil terminal, you weave the wire first inside and then outside of the wooden dowels. Keep pushing the wire down only where the strands cross one another. You will now see why the wooden dowels have to be able to slide up as you wind the coil. If you have the wooden dowels up too high to start with it is very difficult to get the wire down into place.

When you have all of the desired turns on, again wrap a full turn of wire around the dowel. Generally, the wire ends should terminate on the same wooden dowel.

After all the wire is on take some thin nylon fishing line and tie together at about six places where the wire cross each other. After the nylon line is tied good and tight the coil can be removed by pulling out the wooden dowels. Put some Duco Cement right on top of the nylon line. After drying for 24 hours the coil is ready to use.

One of the features of this type of coil is that it is easy to prune down if you have too many turns.

It is best to use heavy wire for these coils, but one can use almost any size wire after a little practice. Different sized wires make different sized coils. Colors can be used if desired.

DID YOU KNOW-----?

The GM name "*Delco*" was derived from a company named *Dayton Engineering Laboratories* which made starter motors for Cadillacs before WWI....

MATERIAL FOR OTB

Members submitting copy for the OTB are asked to follow these rules:

1. For lengthy articles, write Editor with description, number of words, pictures, etc. **BEFORE** submitting.
2. Double space all typing. Try to keep length of lines less than 5½".
3. Schematics and diagrams **MUST** be in final form and ink drawn to either approximate 3¼" or 6½" width.
4. Pictures must be sharp, and preferably black & white. (Use of color only on rare occasions). No negatives. Small photographs (3x4 or 5x7) are OK.

Assembly & Finishing

RESTORING A RARE PORTABLE

by Phil Goodman

At a yard sale, I acquired what I believed to be an old home-brew portable set with six brass-base UV-199's. The seller had gotten it from a retired radio mechanic.

However, my friend Dave McKenzie, KØSVJ, identified it as a Zenith super-portable and produced the June, 1977, issue of the *OTB* where the set is pictured on page 8.

Leo Gibbs, W8BHT, and especially Fred Cassens, WB7SOT, provided some historical background. Fred worked at Zenith when it was still Chicago Radio Labs on South Kedzie Avenue. He recollects that 1,000 portables were built, with at least 600 being returned because of high battery power consumption and heavy weight. These were stored at the South Kedzie Avenue building. Their disposition is unknown.

I am aware of the rumor about the public destruction of these sets by fire in Grant Park as a publicity move to restore public confidence in Zenith. However, I have consulted the *New York Times Index*, the Chicago Public Library, the *Chicago Sun-Times*, The Chicago Historical Society and Zenith, and have not been able to get confirmation of the rumor.

I restored the radio, rewinding the RF transformers and it now is operating! The radio has a tuned loop antenna, three stages of transformer-coupled RF amplification, a standard grid-leak detector, and two stages of audio into a driver, which outputs into a right-angled cardboard trumpet to bring the sound outside the set.

It requires three 1.5 volt cells and four 22½ volt cells. The controls on the top surface (where the handle is) are: center - the tuning capacitor, right side - rheostat to control the three RF filaments, left side - bias control for the three RF tubes. Inside the set is another rheostat to control the current of the remaining three filaments.

The set is fairly selective, considering it has only one tuned circuit and is quite directional due to the loop antenna. Audio power output is low – possibly a more sensitive driver is needed. The set is built into a sturdy, black suitcase, with the loop in the lid, and weighs 22 pounds – a heavy portable.

An advertisement for this set appears in the *Radio Digest* of May 10, 1924, page 7. Operating and troubleshooting procedures are given in the *Radio Digest* of June 14, 1924, page 7.

Admiral Donald MacMillan of Zenith Radio Corp. with one of the first portable sets.

RESTORING OLD EQUIPMENT

How did you SOLVE a problem when re-storing a receiver? Drop us a note telling how you did it.

RESTORING WRINKLE FINISH

The following general refinishing procedure has been used to restore damaged wrinkle finish on pre-war National receivers, Meissner Signal Shifter cabinets, and similar vintage equipment.

Wrinkle-finish heat-resistant spray enamel may be purchased at automotive supply stores. This spray enamel is used to finish auto interiors, engine accessories, etc. Spray enamel is commonly available in black and, in some stores, in other colors (grey, green, and red).

Wrinkle finish can be applied to obtain either a fine or a coarse texture finish to match the original panel or cabinet surface texture. A heavy wrinkle finish is obtained by spraying the surface with several heavy coats applied approximately three minutes apart following directions given on pressurized can. Allow painted surface to air dry; use heat lamp or use bake oven, if desired, to change texture and decrease drying time.

New surface should be primed before spraying with wrinkle enamel. Old surfaces may be spotted by spraying damaged area with several light coats applied three minutes apart and then applying heat to area; a 60-watt bulb in an aluminum reflector will provide adequate heat.

If the final color of the wrinkle finish does not match the original finish, the entire panel or cabinet surface may be lightly sprayed with the desired color, using compatible spray enamel.

H. Paul Bohlander, W3VVS

[News clipping: Nov., 1928]

Freshman in Merger with Freed-Eisemann

The Charles Freshman Company and the Freed-Eisemann Radio Corporation, both receiver and speaker manufacturers, have merged.

The Freshman Company stock of 500,000 shares, no par, is to be increased to 900,000 shares, no par.

ODD SIZE RESISTORS

Have you ever wondered why Philco radios of the 1930's used some unusual resistor values? Here's an explanation, as related in Ghirardi's *Radio Troubleshooter's Handbook*, Third Edition, page 635:

"Some of the larger radio manufacturers - for example, Philco - employ mercury-vapor-lamp lighting in their assembly plants. Certain colors are difficult to distinguish under the bluish-green of these lamps. To overcome this difficulty, in such cases, these manufacturers employ odd values of resistors. For example, the black in the green-black-orange color coding of a 50,000-ohm resistor is not clearly distinguishable under this light. Therefore, instead of using 50,000-ohm resistors, 51,000-ohm units are used instead, since each of the code colors (green-brown-orange) for this value of resistance shows up sufficiently well. Likewise, 99,000-ohm resistors are used instead of 100,000-ohm, etc."

–Ted Hannah, K3CL

[News clipping: April, 1929]

Fessenden Consultant to Majestic Makers

Professor Reginald A. Fessenden, famous radio pioneer and inventor, has accepted the post of consulting engineer for the Grigsby-Grunow Company, of Chicago, manufacturers of Majestic receivers and accessories. His work with the company will be mainly devoted to the development of television apparatus, but because of his long experience in the manufacture of vacuum tubes and in the design of radio receivers he will be consulted as to these, too.

Professor Fessenden's most noteworthy contribution to radio was the discovery of the heterodyne principle and the invention of apparatus to make use of this principle in radio reception. He is also credited with the invention of the condenser microphone as well as many other radio devices.

THE MUSEUM

A.W.A. HISTORICAL MUSEUM

East Bloomfield, N.Y.
Bruce Kelley, Curator

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May through October

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Free Admission

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NEW EQUIPMENT in A.W.A. Museum

(sets, parts, magazines, books, etc.)

W1BP1, W2DQC, K2AH, W2QO, W2R1Z, W2TON, W2UGB, W2Z1, WA2IKS, WA2-JON, W3AHZ, W3FNU, W3KUH, W3TQQ, W4KFC, W4PDZ, W6AX, WØOEP, W2LC, R. Bramlet, J. Reddig, P. Ferrell, J. T. Wilson, L. Peckham, D. Crothers, L. Larrabee, N. V. Phillips Co., G. Tyne.

MUSEUM ACTIVITY

NEW DISPLAYS IN SPRING.....

The Museum Committee is planning two historical commercial stations for permanent display in an area to be known as the "Ed G. Raser, W2Z1 Wireless Room". One station will feature 1917-18 equipment and the other will be a replica of a United Wireless 1909 station.

Through the generosity and assistance of W2Z1, AWA will have what will probably be the only complete UWT exhibit. Look for more on this later..

ATTENDANCE IN THOUSANDS

Our last report indicated fairly good Museum attendance in the early summer months. A final count shows an increase in July with record crowds in August and early September. The guest register has names from over 40 states including Alaska and Hawaii as well as many overseas visitors.

In addition, the Museum was open to more special groups than in previous years: Rochester Science Museum Field Trips, grade and high school classes, plus several professional tours such as SMPTE, Civil Air Patrol, etc.

The Museum was the scene for filming several movies such as the Marconi documentary (CBC) and one on Thomas Edison. The Museum Staff also provided material for several historical displays and opened the library for members doing research.

As in the past, the Board thanks the 21 volunteer guides, who contributed their time, and members who donated material for display. 1982 was another banner year for A.W.A. Thank you!

POSTAGE STAMPS

The AWA Museum will soon have on display a complete set of Amateur Radio stamps as descibed on page 10 of the June '82 OTB. The stamps are tastefully mounted with description in a large glass frame.

This fine gift was made possible by ARRL President Vic Clark, W4KFC. The presentation was part of the Conference banquet program and delivered by Bill Grenfell, W4GF, retired Chief of F. C. C. Amateur Division. Hopefully, it will encourage members (and museum visitors) to collect this type of stamp.